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## *In this issue . . .*



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## The Price of a Strong £

ALTHOUGH, as we go to Press, the final reports of the International Monetary Fund are not through it is evident that no important formal business is going to be transacted. (The informal meetings, of course, must have been intensely interesting.) In the absence of both M. Gaillard and Dr. Erhard, clearly the currency valuation problem could not be carried a great deal further.

The value of the meeting for Britain is that it has given Mr. Thorneycroft another platform to repeat in the strongest terms that sterling is going to stay at its present price and within its present fluctuation limits. Even more significant, Dr. Per Jacobson, managing director of the I.M.F., has said that sterling " is certainly not overvalued at its present parity ". Indeed, it may be impossible to exaggerate the importance of this tribute to sterling. For over the past few days foreign thinking on sterling has been changing. Certainly a 7 per cent Bank Rate with attendant measures have led to a partial recovery of the pound. But there have been other reasons.

Over the past year or two there has been some speculation as to whether the dollar might not replace the pound as the world's main trading currency. But in the last few weeks it has become evident that the dollar gap has re-emerged in much its old form—and has done so at a time when the U.S.A. is in a very mild recession. The use of the dollar as a world currency has again become unthinkable —especially as, for reasons of domestic politics, the U.S.A. is nowhere near to that degree of liberalization of trade that is essential for such a creditor country. But the Germans are determined not to allow the DM. to be used as an international currency; for one thing they do not know how much of their reserves are "hot" money, and for another although their reserves are handsome enough for financing German trade they are almost as feeble as the reserves of the sterling area for financing the trade of the greater part of the world.

The truth that has been borne in on foreign countries in the past few days is that only the pound is in any position to act as a world currency and that almost every trading nation has a stake in seeing it healthy. In other words, though Britain will have to put her own house in order, she can expect a fairly sympathetic attitude from most other countries.

The meeting does have a special significance for the I.M.F. itself for it may mark a stage in its history. The purpose of the I.M.F. is to iron out *short-term* fluctuations in the value of currencies of the member countries. It is not allowed to deal with crises arising from structural difficulties in the economies of members and, indeed, its funds are inadequate for that purpose. For most of its life the I.M.F. has had literally nothing to do. There was even talk a couple of years ago of winding it up. In the space of a few months it has become so busy that its funds are seriously stretched. It is entirely possible that by the middle of next year all its reserves will be drawn upon. In fact, if the Germans persist in a policy that denudes all other European countries of their reserves the system may totally break down. For the I.M.F. will be faced with a problem that of its nature is essentially short-term but which is at

the same time indeterminately continuous. In that event the whole Bretton Woods structure may be tossed into the melting pot. And if that happens nothing will be left out. The price of gold will be discussed seriously for the first time since the war.

All that, however, is for the future. The present is very much concerned with 7 per cent and all it means. Obviously, money is going to be dear; but it is also going to be scarce. How scarce for the various mining interests? The banks are going to tighten up on loans, but there is the assurance that cash will be available for the financing of exports. This, however, with one qualification. There is likely to be greater difficulty in financing long-term credit. The cash that is available for financing exports will be expected to do as much work as possible and the amount that can be tied up in a single long-term transaction may have to be rationed. For those makers of mining equipment with export orders the going should not be too hard.

It will be otherwise with the consumers of mined materials. Though copper may look a bargain at anything below £200 it is not so much a bargain when you have to finance a stock of it at the present cost of money. Nor are those who want bank accommodation for the financing of stocks likely to be placed high in the queue. Those producers of minerals who find present prices uncomfortably low and are looking to their very lowness to produce a surge in buying are, one fears, going to be disappointed.

## COPPER STRIKES BACK

Faced with a situation of temporary over-supply, aluminium producers are making intensive efforts to expand their existing markets and develop the many new uses which had to be kept in cold storage during the scarcity years.

On the principle that what is sauce for the goose is sauce for the gander, it is evident that a vigorous policy of sales promotion is also the most effective tonic for the copper industry in its present plight. Whatever expedients may be found necessary to alleviate the immediate crisis, it is evident that in the long-term the way to re-establish copper on a sound and prosperous basis lies not in cutting down production but in stepping up demand. If the present set-back has the effect of stimulating the development of new markets for this oldest of metals, its consequences will by no means be wholly harmful.

A notable example of aggressive marketing policy was afforded by an unusual export sales conference held by the Canadian company, Noranda Copper and Brass Ltd., which ranks among the leading North American producers of copper and copper alloy mill products. The theme of the conference was "Copper Strikes Back".

The company's sales manager insists that copper's potential in export markets has been barely scratched. As a short-term goal, his aim is to see *per capita* consumption of copper in newly developed countries jump from an average of 1½ lb. per person to 3 lb. (in the U.S. consumption per person averages about 15 lb.).

Great pains were taken at the conference to stress that copper—by virtue of its physical properties—has a special niche in the market. There has been a lack of understanding regarding copper's marketing possibilities, it was claimed. If the industry is to win and keep markets, it must do so on the basis of copper's unique properties alone.

Instead of sitting back and waiting for new markets to develop, Noranda is building its own technical service department. "The period of heavy capital expansion in Canada is temporarily levelling off", the company's general sales manager told the Press. "The plants have been built. Now they're creating things within the building. The product design engineers will be making the news. And we want our technical sales people to 'live with' these design engineers and with the research and development departments of our customers. Even if a prospect winds up buying his copper from someone else, we want him to know he can count on us for technical help".

If this progressive and enterprising spirit is typical of the way in which the copper industry is meeting the challenge of over-supply, the present period of adversity is unlikely to be protracted.

## PROSPECTING ACTIVITIES IN SASKATCHEWAN

Late in the summer of 1956, a syndicate, operating under the name of Parrex, completed an aerial survey which has led to the biggest search for base metals in the history of Saskatchewan. This survey covered an area some 175 miles long and ranging from 8 to 20 miles in width, which extends from Wekusko in Manitoba to Deschambeault Lake. Prospecting activities are concentrated in a triangle lying between Creighton and Reindeer Lake along the Manitoba border with its apex at La Ronge.

In the Hansen Lake area the Parrex syndicate selected several potential anomalies as shown by the aerial survey for an intensive drilling programme during the winter months. Assay reports from the initial holes noted zinc running as high as 19-20 per cent, lead 10 per cent and cop-1.3 per cent, with good mineralization encountered on both sides. The initial drilling programme was carried out on the lake through the ice. Staking was heavy during the winter months.

At the northern apex of the triangle, in an area south and west of Reindeer Lake, two discoveries attracted the attention of prospectors. At Brabant Lake sampling of a copper-zinc discovery revealed values ranging up to 7½ per cent copper and 9 per cent zinc with average values running at 2 per cent copper and 4 per cent zinc. Already considerable staking has been undertaken by several groups.

North-west of this discovery, at Reef Lake, a copper-nickel find is attracting considerable attention. At this deposit deep drilling by Studer Mines Ltd. is now proceeding.

At La Ronge, the southern tip of the Apex, Anglo-Rouyn are engaged in an intensive drilling programme to outline a larger orebody than the reserves of 3,000,000 tons of copper already proved. Here a shaft to a depth of 500 ft. was completed last year together with extensive underground work at two levels.

Writing in *Trade and Commerce in Western Canada*, Mr. E. J. Goos, manager of the Saskatchewan Chamber of Mines, stresses the importance to prospectors and exploration companies of the $112,000 geophysical survey completed for the government in the La Ronge area this spring, using both aerial magnetometer and electro-magnetic techniques. Two sets of maps were made available to interested parties at mineral recording offices throughout Saskatchewan on July 12, 1957.

Construction of a road north from La Ronge around the west side of the lake for 33 miles to Waden Bay will open up another mineralized area and provide access to several properties on which development programmes are currently in progress.

In addition to the numerous individual prospectors operating throughout this triangle, there are such well-known mining companies as Rio Tinto, Canadian Nickel, Hudson Bay Mining and Smelting, American Metals, Parrex Syndicate, Glenn Uranium, Fano and others.

# British Columbia and the Yukon by Air

*From a delegate to the Sixth Commonwealth Mining and Metallurgical Congress*

THIS report is being written at Yellowstone, which is the half-way point of the northern aerial tour organized by the Congress. About 165 delegates are in our party, the rest being on their way by rail from Vancouver to Winnipeg, where the two sections will link up again.

Assembled at this famous mining centre are delegates from all parts of the Commonwealth, among them many whose names are household words throughout the world. Indicative of United States interest in Canada's mining industry is the presence of a large group of engineers from the U.S. Bureau of Mines and from leading American mining and exploration companies.

So far we have seen something of British Columbia and the Yukon and we are about to visit the North-West Territories. We left Vancouver in two DC-6s and touched down at Terrace, B.C. We then travelled by special train to Kitimat, where we visited the Alcan smelter.

After an early start the following morning we flew for hundreds of miles through cloudless skies and under these ideal conditions were given a most vivid impression of the magnitude of British Columbia's mining and industrial progress. Passing directly over the Alice Arm, we could see the Torbrit mine on one side of the Observatory Inlet with the old Anyox camp on the opposite side. We flew past the mining camp of Stewart and had an excellent view of the camp of Granduc Mines Ltd. Heading slightly west of north we passed over the vast glacier country, in which considerable prospecting and exploration is currently taking place. The historic town of Atlin could be clearly seen and as we approached Whitehorse we had glimpses of the Chilkoot and Dyea passes, both of which have been vividly described by the Yukon's famous poet, Robert W. Service.

Among the highlights of our visit to Whitehorse were bus tours to the summit of Keno Hill, some 6,000 ft. above sea level, where a post has been erected by the Keno Hill Company showing the direction and distance of all the Commonwealth's principal mining centres.

### The Mining Areas

Though rich in lead and zinc, the ores in the Whitehorse area could not be profitably worked under present conditions were it not for their high silver content. In fact, zinc concentrate can no longer be economically shipped at present prices. The United Keno Hill Company, however, is very favourably placed to overcome these difficulties thanks to its very modern methods of mining and treatment and the fact that it has shipping facilities of its own.

The next centre to be visited was that most magnetic and colourful of all Canadian mining camps, the Klondyke, where we spent four memorable hours. Our hosts were the Yukon Consolidated Gold Corporation Ltd., who took us to Bonanza Creek, a tributary of the Klondyke River, where we were shown their largest dredging operation.

On their return to Whitehorse the party were guests of the Whitehorse Branch of the British Columbia and Yukon Chamber of Mines, under whose auspices we had opportunities of seeing such well-known spectacles as the Whitehorse Rapids and Miles Canyon, besides visiting a new hydro-development scheduled to deliver 15,000 h.p. to Whitehorse for domestic consumption by the end of 1958.

On the morning of September 14 we departed for Yellowknife. Throughout the four-hour flight we were again favoured with clear and sunny weather, which afforded us excellent views of such notable landmarks as the Victoria Falls on the Nahanni River in Headless Valley. At the time of writing we are guests of the Yellowknife Branch C.I.M. Some delegates are touring the Consolidated Discovery gold mine and the Rayrock uranium mine as guests of the Byrne organization; others are being entertained by the Consolidated Mining and Smelting Co. and Giant Yellowknife Gold Mines Ltd., who are conducting them round their mines and mills; others again are preparing to attend a technical session which is to be held this afternoon.

### An Impressive Industry

Delegates from other countries are particularly impressed by the vitality of the Canadian mining industry, the vastness of its resources, and the flexibility and ingenuity which is being displayed in dealing with existing difficulties. The present slump in base metal prices is, of course, very much in everyone's mind; so far as the long-term outlook is concerned, the general feeling is one of confidence that the metal markets will right themselves in due course. The additional handicap caused by the premium on Canadian currency against the U.S. dollar is causing some concern and no solution of this problem appears to be in sight.

However, Mr. R. D. Perry, of Consolidated Mining and Smelting, was able to tell delegates that long-term profitable operations of the Pine Point lead-zinc reserves on Great Slave Lake was assured as soon as transportation problems had been solved. And Pine Point, he added, assured Cominco's future in the lead-zinc industry. He predicted that iron calcine from the Kimberley fertilizer plant may soon become the basis for Western Canada's first primary production of iron and steel.

Cominco is reportedly finding lead sales good, with the market firm, but zinc sales on the slow side with volume only fair.

Zinc output was recently reduced 10 per cent as a result of cutting off the Sullivan open pit and shutting down the Tulsequah mine. These had only a negligible effect on lead production. It is said that the company could sell more lead if it could produce it.

Cominco is a beneficiary of the higher ammonia nitrate prices which fertilizer firms in the U.S. ushered in at mid-year in the wake of booming Spring business.

The mining industry in Canada is faced with yet another difficulty, which has been frequently mentioned by speakers at the various social functions. As elsewhere, there is a shortage of mining engineers and geologists. As the president of the Congress, Mr. Diamond, put it in his inaugural address at Vancouver, the mining industry has a selling job to do in schools and universities in order to obtain the requisite number of recruits.

In all the mining camps visited, and, in fact, throughout the tour, arrangements have been faultless down to the smallest detail. Many months of preparatory work by the central and regional congress committees are now paying dividends in smooth organization which, coupled with the tremendous hospitality experienced everywhere, is making the Sixth Commonwealth Mining and Metallurgical Congress an unforgettable one indeed.

# *Climate of Australian Mining*

BEACH sand mining in Australia has met a period of difficulty, caused largely by over-production, and it is now impossible to sell rutile concentrate unless firm contracts are held. Several companies have already been forced to curtail, or to cease, operations. The over-production aspect can be realized from the fact that a year ago there were 13 companies in operation; at the present time there are 29. In addition to local over-production, overseas buyers have already secured their requirements for some time ahead. There has naturally been a drastic fall in price, aggravated by some producers offering large parcels of concentrate at low prices. The closing down of more companies, which is inevitable, will help to stabilize the market at a higher level, but meantime the industry will be in a difficult position, except for those producers with firm, and satisfactory, contracts.

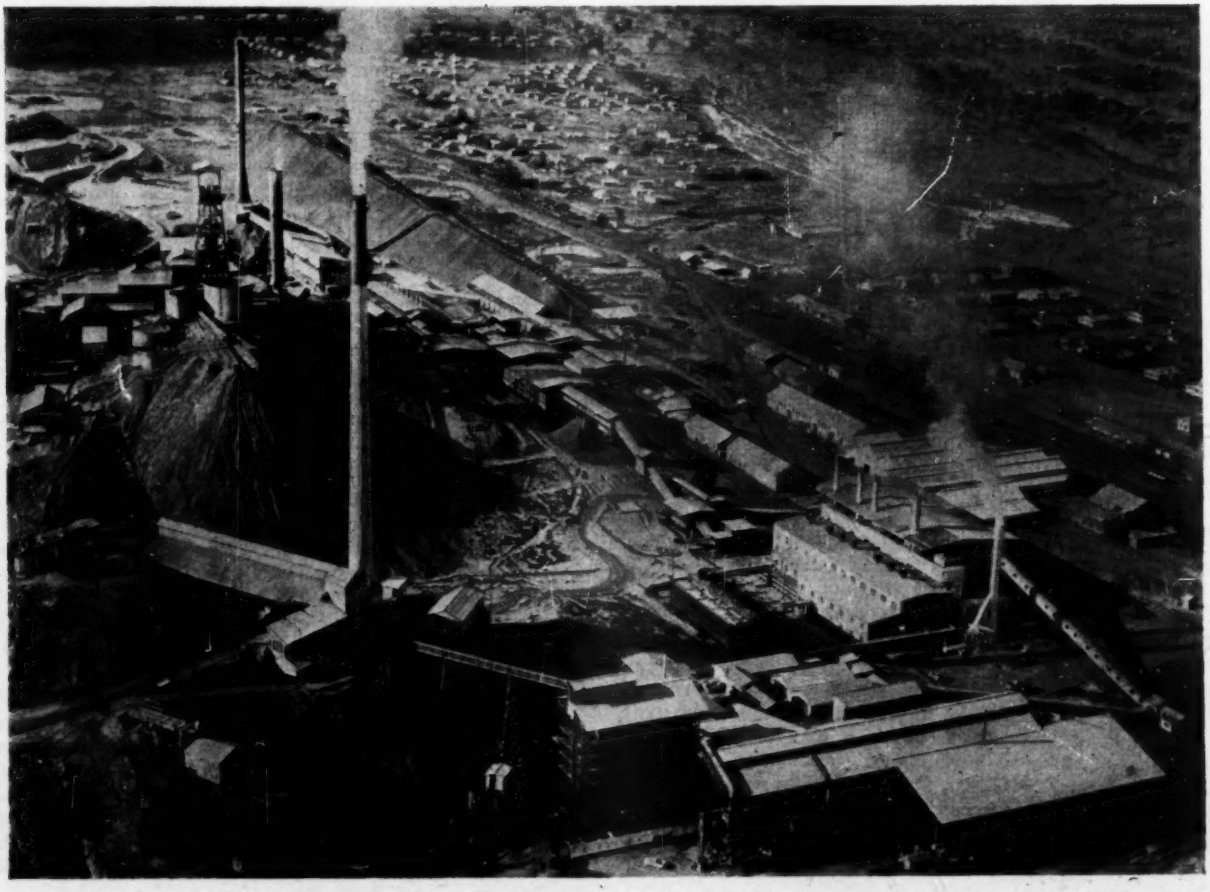
Probably the basic contributing factor in the position is that the demand for, and the development of, the use of titanium metal, has not advanced as quickly as had been anticipated and over-optimism has influenced the desire to take advantage of the phenomenal price for rutile, hence the heavy over-production. Another factor which may have helped to bring about a buyers' market was the forecast that this year's operations would see a total of some 180,000 tons of rutile, a figure which is now unlikely to be realized but which had, initially, a weakening influence on the market.

To safeguard the interests of producers, The Australian Association of Mineral Sands Producers has been formed by beach sand mining companies in New South Wales and Queensland. It is probable that the Association will operate on the lines of previous tin producers' associations and cartels, and it is hoped that benefit to the industry will result.

**Uranium Mining**

Features in uranium mining are variable. At the mine of Mary Kathleen Uranium Ltd., in North Queensland, approximately £A6,000,000 is reported to have been spent on development, construction and equipment. The township has been built, the dam on the Corella River completed at a cost of about £A300,000, and the 18-in. pipeline is delivering to town and mine. Open-cut mining has been in progress for some time, and already about 100,000 tons of ore are stockpiled awaiting the completion of the treatment plant, which is expected to be working late in 1958.

In the proving of the orebody, 40,000 ft. of diamond drilling was completed in two years; this has delineated the orebody to a depth which assures a tonnage warranting



**In this article our correspondent in Australia presents a brief summary of the state of the Australian mining industry to-day.**

the expenditure on the mine, that will ultimately approximate £A10,000,000, but this drilling has not disclosed the persistence in depth of the ore occurrence, which remains to be determined by further drilling. This, no doubt, will be done when productive operations are in progress.

In South Australia, the State Government works the Radium Hill mine and all prospecting is a State preserve. A recent statement advises that finds have been made in the vicinity of Radium Hill which indicate increasing importance for the industry. A new lode, parallel to the known orebody, has been located, but the latest discovery is that ore occurs in the adjacent rock, which constitutes a quarrying proposition to a certain depth, and production is possible as soon as the treatment plant has been modified to the needs of the new ore. It is anticipated that the new ore discovery will be widespread, and it is described as important.

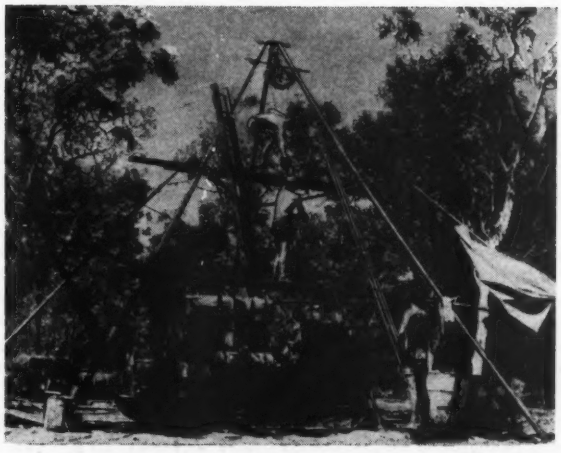
Early anticipations that the Northern Territory would prove to be a very important uranium province are being considerably modified. The Rum Jungle Mine, owned by the Commonwealth Government and operated for that authority by the Zinc Corporation Ltd., is progressing, but it appears likely that its treatment plant will serve all other Territory producers of uranium ore. Several companies, either individually or collectively, have looked toward treatment plants, but it would appear that ore reserves are insufficient to warrant the cost involved. Some high-grade uranium concentrate is exported by at least one of these producers, and the balance goes to the Rum Jungle plant.

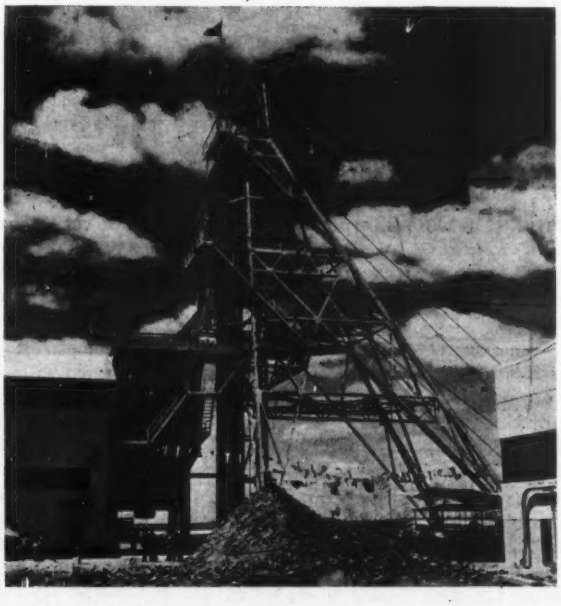
A recent statement by one large organization is that its future operations must be re-assessed in view of the decreasing chances of making important finds, for the country generally offers less geological potential. In one area, a definite drilling programme is regarded as vital to the future, and in a second, prospects are not regarded as very hopeful. Another major organization is considering a limited programme of exploratory drilling. In the past year, only one new potential prospecting company has entered the field, in the Cloncurry district of North Queensland. It would seem, however, that amongst the discoveries following the uranium boom, the possible prizes, great and small, are now clearly known.

### Copper and Gold

The fall in the copper market is causing uncertainty with regard to Australian producers, particularly as two mines operate on very low-grade ore. At Mount Lyell, the grade is 0.66 per cent copper, at Mount Morgan 0.82, at Mount Isa 3.70, and at Peko Mines, 8.50. The first two mines are open-cut, the last two are underground propositions. A six-year expansion programme has put Mount Lyell in a position to increase output and reduce costs, while from the dividend aspect, investments place the company in a very strong position; there is good support, too, from regular and important pyrite sales.

Mount Morgan Ltd. is in a much more unfavourable position and the situation may be close to the borderline, for on last year's operations, profit from mining was only





**On the left is a panoramic view of Mount Isa Mines Ltd. The illustration at top shows diamond drilling in progress at Rum Jungle, while in centre is the headframe of the Main Shaft at Radium Hill. Below, a miner is drilling a vertical hole with short pusher leg attachment at Gold Mines of Kalgoorlie**

£A23,800, the balance of the profit of £395,000 coming from the smelting of old concentrates which will be non-recurring. The position was accentuated by a go-slow strike on the mine, and it has been made clear to employees that a weekly production of 14,000 tons of ore at a price of £A336 per ton of copper is necessary to cover production costs. Lower grade ore, resulting from a slide of material from upper levels, has interfered with working and has complicated difficulties.

Some hope lies in the development of the pyrite side of the enterprise, on which great hopes were placed, as its utilization is an important factor in the working of the lower grade Sugarloaf orebody, which contains, roughly, half the ore reserves. Negotiations are proceeding with local and overseas interests, but local users favour readily obtained brimstone. The Tariff Board is considering assistance to Mount Morgan, and much depends upon its decision.

How the market position will affect Mount Isa Mine's expansion plans on the copper side is not clear, but this company will be materially helped by its lead-zinc operations, and will doubtless continue with the refinery and other allied work. The other producer, the relatively small Peko Mines, had embarked on an expansion programme before the copper trend became apparent and it is now necessary to conserve finances. Although the company is helped by the gold content of the ore, it is faced by very heavy transport charges on concentrates, which have been stated at £100 per ton of copper.

The trend of information on gold mining is that the continued rise in costs, and the stagnant price of gold, are steadily reducing the margin of profit; this will have its adverse influence upon output, upon the margin at which ore reserves must be reconsidered and important tonnages of a national resource excluded from possibility of recovery, and also upon the expenditure that can be allocated to exploration and development. Higher working costs have been offset to some extent by mechanization and by greater efficiency, but there is a rapidly narrowing limit to possibilities in these directions, and recoveries may be said to be at an economic maximum.

# The Mounting Need for Iron Ore

**One of the most challenging tasks raised by the vast programmes for the expansion of steel capacity in all parts of the world, is the provision of increased tonnages of iron ore and adequate means of transportation from the mines to the consuming plants.**

THE U.K. is fortunate in the possession of very large reserves of iron ore. A recent survey indicates the existence of "probable" reserves of more than 2,000,000,000 tons and "possible" reserves of nearly another 1,000,000,000 tons.

What matters, of course, is the immediate and prospective rate of extraction. Recent production has varied within very narrow limits. In 1955 total output of home ores in the U.K. was 16,350,000 tons; last year it was raised to 16,390,000 tons and an output of 17,500,000 tons is planned for 1958.

That figure is already out of date. It may be possible to increase the intake of foreign ores by a further 50 per cent in the next five or six years. Indeed, the calculations of the Iron and Steel Board are based on that assumption. Since the war the use of imported ore and sinter has increased by nearly 130 per cent, and to meet an estimated pig iron requirement of 19,000,000 tons in 1962 it is estimated that an extra 5,500,000 tons of imported ore will be required.

Accepting this figure as an attainable target, a still greater expansion of the supply of home ores will be required during the next five years, and the onus has been thrust upon the steel industry of Great Britain to devise ways and means of increasing the production of native ores from the present level of, say, 16,500,000 tons to possibly 22,000,000 tons in 1962.

Obviously, requirements of this magnitude impose the necessity of big developments in all the ore fields of Great Britain and as 85 per cent of all the ore raised last year came from three areas—in Northamptonshire, Lincolnshire and Oxfordshire—it is from these sources that the biggest increases are expected.

Setting aside the difficulty, common to all areas at the moment, of increasing the labour force, and providing the extra housing accommodation for the workers, the most promising field for exploitation is in Oxfordshire. The Frodingham ore in North Lincolnshire, operated by United Steel, has an extremely low iron content of no more than 18 per cent. Being very deep seated it is expensive to work and is only economically useable on the spot. The deposits at Northampton Sands have a higher fe content but otherwise similar conditions prevail and probably any increased output will be absorbed by consuming plants in the immediate neighbourhood.

Under these circumstances the Iron and Steel Board has been pressing the industry to explore a new area in Northamptonshire where considerable deposits of iron ore are believed to exist. These explorations are still in their infancy; indeed, they have scarcely begun, and the extent to which the deposits can be profitably worked is still an unanswered question.

No doubt there are powerful economic incentives to make the utmost possible use of home resources but the question of comparative costs cannot be ignored. Where does the balance of economic advantage lie?

The present c.i.f. cost of imported ore is somewhere between £6 and £6 10s. per ton compared with an average delivered cost of home ore at the steel works of about £2 per ton. But the yield of iron from imported ores is about twice that from home ores and higher smelting costs, together with the heavier capital expenditure in blast furnace capacity designed to use native ores, tends to bring the financial considerations into closer alignment.

The conclusion seems to be that the industry must make the best use of indigenous as well as external resources. The time is fast approaching when the industry will be using rather more foreign ore than the total home output. The estimate of the Iron and Steel Board is that in 1962 the production of 21,000,000 tons in this country will be 1,000,000 tons less than the intake of foreign ores.

But for those latter, world competition is increasing, and although Labrador, Sweden, Venezuela and Brazil are all developing new resources, the possibility of scarcity, or even the temporary interruption of the supply lines from overseas, leads to the conclusion that the further exploitation of our own reserves should command immediate attention.

# Modern Mineral Prospecting Techniques

*In the following article, condensed from "Aerial Survey Review", Dr. D. M. Davidson discusses modern prospecting techniques.*

MODERN prospecting often begins with an idea evolved as a result of considerable study and thought on the part of teams of geologists and allied research men. A hypothetical modern prospecting venture will have a history somewhat along the following lines: Geologists and geophysicists, using bold imagination after thorough study, select an area which warrants exploration. Once an area has been chosen, acquisition is in order, which, if successful, is followed by aerial photography. The aerial photographs serve as base maps for geological mapping. Likewise, the photogeologist studies them, first, to furnish reconnaissance sheets of the generalized geology and structure for ground crews, and later for detailed study.

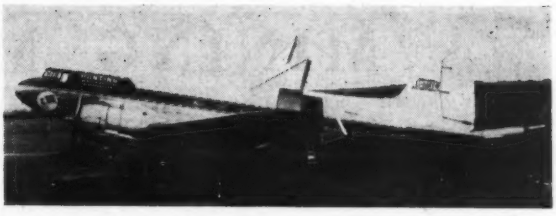
Ground geology interlaces with photogeology to produce the utmost meaning from the area of study. Geochemical studies are made in areas of residual soil, stream waters and/or detritus, and even vegetation, in the search for minute but "above background" quantities of metals which may prove to be the clue to buried orebodies. A search is made for hydrothermal alteration patterns or halos, which may occur above concealed orebodies. Detailed ground geological surveys are conducted in conjunction with the detailed photogeological surveys.

Following initial aerial cartography, the aerial geophysicists test the areas of interest at low altitudes using one or all of magnetic, electrical and radiation techniques. Just as the photogeological interpretation is tied to the detailed work carried out by ground crews, so are the anomalies detected by aerial geophysical surveying tested on the ground by appropriate ground methods.

Examples can be cited where ground crews, traversing at quarter-mile intervals across the strike of formations, completely missed the significance of truncated fan-folds, whereas the photogeologist by means of his broader three-dimensional view has properly interpreted these complicated structures. Again, the photogeologist has demonstrated his ability to detect large overthrust faults which are either missed by ground crews or are only found later.

Aerial geophysics has accounted for some of the most spectacular finds in North America during the past decade. One need only mention the detection of the anomalies which led to the unearthing of the large base metal deposits in the Maritime Provinces of Canada to illustrate how well electro-magnetic methods have worked.

**A forest interpreter examines aerial photographs through a stereoscope**



**Specially modified DC-3 aircraft to carry and operate simultaneously electromagnetic detector, magnetometer and scintillation counter**

Aerial magnetic methods have revealed some of the largest, high-grade iron ores found in recent years. Most notable is the Grace mine at Morgantown, Pennsylvania, where the apex of the ore was some 1,500 ft. underground.

Airborne Geiger counters and scintillometers have revealed many uranium deposits in the Colorado Plateau. Rim flying has spotted many a channel deposit in various members of the geological section which are truncated by the canyons of the Plateau.

Geochemical studies consist of chemical analyses for extremely minute quantities—as little as one part in ten million—of metals which may occur in residual soil, glacial drift, in stream waters and/or stream detrital material, as well as in vegetation. It has been shown that the amount of metal in an area overlying a metallic orebody will be higher or "above background" in quantity than in areas which are not mineralized. Likewise, stream waters flowing over mineralized areas will carry an "above background" quantity of the valuable material. Therefore, a modern prospector, by means of chemical analyses of stream waters, may work back up the stream to the source of the valuable metal, namely, the mother lode.

A somewhat analogous type of investigation is the study of hydrothermal alteration patterns, or halos, in mineralized districts. These halos consist of minerals which have been added to the original country rock. The oldest recognized form of this type of alteration is the gossan (predominantly iron oxide) familiar to miners for centuries. Other forms of mineralization include silicification, chloritization, sericitization and dolomitization. When these occur in likely areas, and when they appear to be in a confined characteristic pattern, they comprise likely targets for exploration in as much as they constitute clues as to the possible presence of underlying or concealed minerals.

The greatest opportunities for improvement in prospecting belong to the air. The reasons stem, first from the fact that aerial mapping is more accurate; second, all aerial work is extremely rapid compared to ground investigation; third, air study gives the bird's-eye view; and, fourth, we see the whole picture sooner and in many cases more clearly than by ground search.

# MINING MISCELLANY

The strike at St. Patrick's Copper Mines, Avoca, in Eire, which lasted for three weeks, has been settled and work has been resumed.

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Sixteen mining technicians have left Johannesburg to open up deep-level coal mines in Britain. The contract calls for the sinking, within a year, of two 3,000 ft. shafts at Parkside Colliery, Lancashire. It has been secured by Roberts Construction Co., of Johannesburg.

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Plans are reported to be afoot for the construction of a tin smelter in Bolivia by the United States concern of Kornblum Metal and Associates. The president of Kornblum recently discussed the proposed plant with Bolivian officials.

★

Ore reserves of Turkey's Ergani mines are now estimated to contain some 360,000 tonnes of metal, compared with an estimated total of 100,000 tonnes before the second world war. Output of copper in 1956 was put at 24,763 tonnes against 23,800 in the preceding year.

★

Northwestern Explorations, the British Columbia exploration subsidiary of Kennecott Copper Corporation, has signed an agreement with Krain Copper on an option to develop the property of the latter company. Krain Copper is owned by Beaver Lodge Uranium Mines and Farwest Tungsten Copper Mines.

★

The Norwegian firm, Elektrokjemisk A/S, reports rapid progress on the 20,000-ton aluminium plant which it is constructing at Mosjoen in North Norway. The project was started a year ago and the cost is estimated at 125,000,000 kroner. Trial operation of the first furnaces is scheduled for the end of this year.

★

The Federation of Economic Organizations (Keidanren) is studying plans for the extension of aid in the development of a number of tin mines in Portuguese Guinea, states a report from Tokyo. Further details are to be made public following an on-the-spot survey by Mr. Yoshinari Sajima, director of the Secretariat of the Japanese National Committee of the International Chamber of Commerce.

★

Thirteen prominent French banks have jointly set up an investment company to finance mining, power and other development projects in the French Union. The new concern — Compagnie Financière pour l'Outremer (COFIMER) — will be accorded long-term tax facilities similar to those granted by the State to key companies operating in the French Union. The State will also guarantee a minimum dividend of 5 per cent for the first ten years on a capital of up to 12,500,000,000 francs. COFIMER's statutes provide that up to 20 per cent of its capital may be invested in oil research and exploitation. In this event the Government-guaranteed dividend would be reduced to 4 per cent.

Advocate Mines has delineated a large deposit of excellent quality chrysotile asbestos in Newfoundland. The deposit is contained in a mineral concession held on Burlington Peninsula on the north coast of Newfoundland. So far 27,825,000 tons of asbestos ore have been established The grade is $8.15 per ton and the orebodies are large enough to mine by low-cost open-pit methods. It is at present planned to bring the property into production at a rate of 3,000 tons per day, at an estimated capital cost of $17,540,000. The intention is to continue the 3,000-ton daily rate for four years, after which production will be raised to 5,000 tons daily.

★

Application has been made by the West Midlands Divisional Coal Board for an order authorizing them to work the coal in a substantial part of the central area of the North Staffs. coalfield. The area concerned is the old manor of Newcastle-under-Lyme in the right of the Duchy of Lancaster. Before the N.C.B. succeeded to the title in this coal through the Coal Commission, the Duchy granted leases to colliery concerns to work the coal. Arising out of a judgment in 1939 by the House of Lords, it became necessary for the Wolstanton Colliery Co. to obtain an order to work the coal within its colliery "take". In 1952, the Coal Board was granted an extension of the order to enable them to work further coals. It is now intended, instead of making piecemeal applications from time to time, to seek a general order to work coals within the area.

## PERSONAL

Mr. J. B. Richardson has recently paid professional visits to New Zealand and Western Australia.

★

Mr. J. F. Ince has been elected a director of Ribon Valley (Nigeria) Tinfields, Ltd., following the resignation from the board of Mr. H. R. Mitchell, who is now the company's technical consultant.

★

Mr. S. R. Channon has been elected a director of United Tin Areas of Nigeria, Ltd. This appointment fills the vacancy caused by the resignation of Mr. H. R. Mitchell, who is now the company's technical consultant.

★

Mr. B. A. Miller has now returned from Tanganyika, where he was acting general manager of Williamson Diamond Mines during the temporary absence of Dr. J. T. Williamson, governing director and general manager.

★

Mr. A. J. Peech has been appointed general managing director of the United Steel Companies, Ltd., in succession to the late Mr. Gerald Steel, who died on September 13. Mr. Peech was formerly deputy general managing director.

★

Mr. I. W. Wilson has been elected chairman of the board of Aluminium Co. of America in succession to Mr. Arthur Vining, who retired on August 2. Mr. Frank L. Magee has been appointed president of Alcoa in Mr. Wilson's place.

★

Mr. Humphrey Edmonds, an executive director of Oldham and Son, Ltd., and head of the export department, left on September 26 for a 20,000-mile tour of some of the 90 markets to which the company's products are supplied. Among the places he plans to visit are Baghdad, Teheran, Abadan, Basra, Colombo, Singapore, Kuala Lumpur, Hong Kong, Bangkok, Rangoon, and Beirut. Mr. Edmonds expects to arrive back in England shortly before Christmas.

★

Mr. Patrick Hall, chairman of the British Reinforced Concrete Engineering Co., Ltd., has left for Canada on the Queen Elizabeth. He is on a visit to his company's wholly-owned subsidiary, B.R.C. Weldmesh, Ltd., in Vancouver, where production of welded mesh started in June this year. Mr. Hall will be joined in Vancouver by Mr. Harold Walker, the director in charge of the parent company's overseas business, and together they will visit Jamaica and Trinidad.

★

President René Mayer has announced his decision to resign from his office as member and president of the High Authority of the European Coal and Steel Community. In his letter of resignation, he recalls that he accepted his office on June 1, 1955, on the occasion of the Messina Conference, which marked the re-launching of the European idea. Today, with the Rome Treaties signed and their ratification under way in the six member countries, a new epoch has opened in the building of Europe. Accordingly President Mayer, by placing his office at the disposal of the Governments, hopes to facilitate their task in allotting the posts of members and the presidencies of the three European institutions (Coal and Steel Community, European Economic Community, and Euratom).

## CONFERENCES AND EXHIBITIONS

The World Metals Congress, to be held in Chicago, November 2 to 8, 1957, at Hotel Sherman, is sponsored by the American Society for Metals. The attendance will be more than 45,000.

★

Electrical engineering applications in the mining and metal industry will be reviewed in seven technical papers during two sessions at the autumn general meeting of the American Institute of Electrical Engineers at Chicago on October 7 to 11.

## CONTRACTS AND TENDERS

*Formosa*

In our issue of 5/7/57, page 16, we gave particulars of an I.C.A. procurement for mining machinery and equipment relating to tenders issued by the Central Trust of China. The closing date has been extended from 24/7/57 to 23/9/57 and the delivery date from 31/12/57 to 28/2/58. B.O.T. Ref.: E.S.B. 15888/57 ICA. Telephone inquiries to Chancery 4411, extension 354.

*Technical Briefs*

# Electro-deposition on Beryllium

A report, covering work done at the Battelle Memorial Institute, describes two methods for electroplating beryllium. One procedure involves electrochemical and chemical activation of the beryllium surfaces for direct plating with nickel, iron, copper, aluminium, silver, tin and speculum.

The other method is based on the application of a replacement film of zinc on the beryllium surface, followed by strike plating with copper or nickel from baths suitable for plating on zinc. After the strike plating, electro-deposition is by methods generally used for plating on the metal which has been selected for the strike. The second method is similar to that used for electro-deposition on aluminium and magnesium.

The diffusion of electroplated metals (zinc, copper, chromium, nickel and iron) with beryllium was investigated, to determine the characteristics of the alloys formed at elevated temperatures. Strong solid-solution alloys appeared to give satisfactory bonding, but formation of compounds usually resulted in brittle interfacial layers, and weakened a bond which might have been good in the as-plated condition.

The results of the diffusion experiments with nickel and beryllium indicate that the use of electrodeposited nickel on beryllium should be considered only for applications involving temperatures below 660 deg. F. (350 deg. C.).

## NEW LOAD-RESISTING LUBRICANT

A new concept on the lubrication of enclosed gears, by fixed and dispersive lubrication and known as the Voler Reductol Plan, has recently been announced by Revol, Ltd.

The scheme uses two types of media for separating the gear teeth, an unctuous solid in suspension in a viscous fluid. The solid is a superfine colloidal graphite marketed under the brand name Voler Drylube A, and the liquid is Voler Reductol, a high-grade lubricating oil containing colloidal graphite in suspension and non-corrosive E.P. additives to counteract corrosion, together with a new silicone additive to reduce foaming.

In practice, the Reductol Plan is to use Reductol as the fluid lubricant and, before new gears are put into service, coat the teeth with the graphite compound Drylube A.

Scuffing tests were carried out with a high-grade lubricating oil as a reference level, and when taken to the point of failure showed that with Reductol alone the film strength was superior to that of the reference oil. With the full Plan, that is Reductol lubricant plus pre-treatment with Drylube A, the film strength was shown to be 26 per cent greater than that of the reference oil.

The desirability of using the full Plan is again emphasized by temperature tests. The curves indicate the remarkable drop in operating temperatures on new gears of nearly 25 deg. F. that was obtained by changing from a high-grade oil to Reductol and Drylube A. It was accompanied by a 50 per cent improvement in the minimum working viscosity of the lubricant. Drylube A, used with the reference oil, also showed an appreciable lowering of the temperature.

## NEW PELLETIZING PROCESS

The Allis-Chalmers Co. has announced the development of a new process for pelletizing and heat-treating magnetic concentrates produced from low-grade iron ore of almost unlimited availability, to produce extremely hard, durable pellets ideally suited for blast-furnace feed. It is said the process is expected to hasten development of America's taconite resources, since it offers the steel and ore mining industries important new economies in fuel and maintenance costs and elimination of pellet breakage.

Essentially, the new process consists of these steps: Forming the pellets in a balling pan or drum; drying the pellets on a moving grade; heating; partially oxidizing the pellets on a moving grate; and final burning of the pellets in a short rotary kiln. Fuel economy of the Allis-Chalmers system is claimed to be the result of efficient re-use of exhaust gases from one stage of the process to support reactions in others.

## ORE PROSPECTING METHOD

A new electronic method of prospecting for ore deposits is being developed in Sweden. The operation of the method depends on the use of radio waves having a wavelength in the region of 80 metres. The technique, which is being developed by the Swedish company, Bolidens Gruv Aktiebolag in collaboration with the Swedish Geological Institute, is said to be able to locate deposits of ore, such as iron ore, at depths of up to 300 metres in mountainous country.

The equipment has already been used during its development trials to locate substantial iron ore deposits in the Maurliden mountains in Norrland.

## LIGNITE PROCESS FOR INDIA

A lignite-processing method developed by the U.S. Bureau of Mines may soon be used to provide a fuel for generating low-cost power in a remote area of South India.

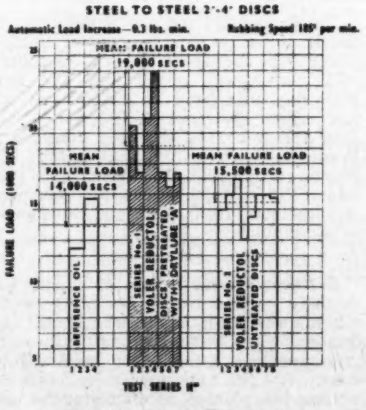
Recent experiments at the Bureau's Denver laboratories, described in a technical report recently released, showed that raw lignite from a large deposit at South Arcot, Madras, India, can be upgraded with the Bureau-developed method to produce superior fuels for certain uses. Pilot-scale tests will be conducted soon in India with a replica of the Bureau's equipment, built by an engineering firm in the United States and furnished to the Indian Government by the State Department's International Cooperation Administration.

The Denver tests showed that, despite a high moisture content, the South Arcot lignite may provide impetus for expanding industrialization in the Madras area, long hampered by lack of a nearby fuel supply. It now imports coal 1,500 miles by rail.

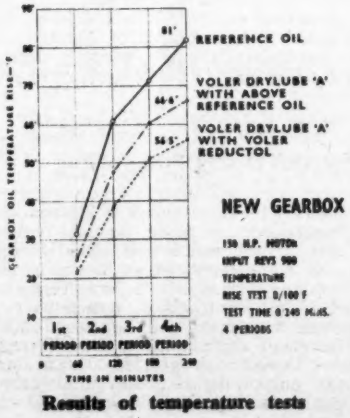
Using an entrained state drier, in which powdered lignite is dried while suspended in a stream of hot gases, Federal researchers found that the Indian lignite could be processed into a satisfactory low-moisture fuel which can be briquetted without a binder to make a product for industrial and home use.

The dried lignite can also be carbonized by the Bureau's fluidized-bed process to yield 25 to 40 gallons of crude tar and about 1,300 lb. of char per ton. The tar is a potential source of valuable chemicals and the char, in addition to being an excellent fuel, can be used to produce synthesis gas for chemical products or producer gas for special fuel applications.

Entrained-state drying already is being used commercially in the United States to supply the fuel that powers a large aluminium plant at Rockdale, Texas. Fluidized-bed carbonizing is being tried on a pilot scale at the same power installation.




Results of scuffing tests




Results of temperature tests

*Metals and Minerals*

# Titanium's Temporary Setback

A few weeks ago (*The Mining Journal*, July 26, 1957, page 114), we referred to the critical situation which had arisen in the Japanese titanium industry, due to the postponement or cancellation of contracts for the shipment of sponge to U.S. civilian companies.

Within the U.S. itself the titanium industry, after seven years of continuous expansion, has experienced a severe though doubtless temporary setback, due to the production cutback in military aircraft coupled with the possibility that certain stainless steels might replace some titanium components.

In the second quarter of 1957 production and use of titanium metal declined markedly from the first quarter. The quantity of sponge metal consumed in making ingots dropped 42 per cent, while the quantity of ingot consumed in making mill products was 36 per cent lower.

On May 21 the titanium producers and fabricators industry advisory committee, which is sponsored by the Business and Defence Services Administration, was told that military requirements for titanium metal over the next few years would drop substantially below the requirements estimated in 1956. The Department of Defence reported that this was due to a reduction in the number of certain aircraft to be acquired and a stretch-out of deliveries. As a result of these cutbacks in requirements, a number of titanium companies cut back their rate of production and also their working force.

The latest statistics released by the Bureau of Mines show that the production of titanium mill products fell off for four successive months, amounting in July to 449 s.tons. Nevertheless, the output of 4,627 s.tons for the seven months January-July this year is not far under the total for all 1956 of 5,065 tons. Production of titanium ingot totalled 756 s.tons in July, compared with 975 tons in June, and it is believed that more than half the sponge capacity is now idle. Ingot use also declined for four successive months.

To add to its troubles, the titanium industry is now facing competition from a high-strength, high-temperature stainless steel developed by Armco Steel Corporation for use in missiles and jet aircraft. The airframe or skin steel contains about 15 per cent chromium, 7 per cent nickel, and 2½ per cent molybdenum. This new material will give reliable service in aircraft at speeds up to 2,700 m.p.h. at which point the air friction skin temperature reaches nearly 1,000 deg. F. It is believed that some of the new titanium alloys will perform satisfactorily at almost this temperature, but they are much more expensive. Mill products of this stainless steel are expected to cost little more than $1 a lb. against $11 a lb. for the titanium alloys, but the latter are likely to have some weight advantages.

Aluminium may also be adversely affected by this development. Hitherto up to 80 per cent of airframe weight has been in aluminium alloys. Armco believes that in the future these will be replaced by other high-strength materials and that stainless steel will be a major material in airframe construction during the next eight to ten years.

A survey of the National Association of Purchasing Agents reported recently that titanium producers, realizing their precarious short-term future brought about by the necessity of selling 95 per cent of their output to one customer, were working hard to reduce their costs and prices in order to broaden out into the non-military markets. New alloys have been introduced, and new scrap recovery methods, as well as a new and cheaper method of producing titanium tetrachloride, have been announced.

In Belgium a process claimed to be capable of greatly increasing the production of metallic titanium is being investigated by leading Belgian steelmasters. Said to be the first continuous automatic method of extracting titanium from ilmenite ores, it depends on separating the titanium from the iron and converting it to the tetrachloride. The process can be adapted to make any of a wide range of commercially used or potentially important alloys.

Hitherto titanium has been recovered mainly from the rarer and more costly mineral rutile. If commercially successful, this new recovery method may thus add to the troubles of Australian rutile producers, who continue to suffer from the downward drift of prices resulting from paucity of demand.

So far as the long-term outlook for both the metal and its ores is concerned, titanium is, of course, assured of expanding outlets in many non-military directions, particularly as prices of alloys and mill products are further reduced.

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Canada's first titanium pigment plant, at Varennes, Quebec, has been officially opened. Built by a National Lead Co. subsidiary, Canadian Pigments, Ltd., it will make the Dominion virtually self-sufficient in titanium pigments.

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The Norwegian firm, A/S Titania, is investing 75,000,000 kroner (£3,750,000) to exploit the 350,000,000-ton deposit of ilmenite recently discovered at Jossingfjord in South-west Norway. It is expected that by 1960 it will double A/S Titania's present output of 200,000 tons of concentrate annually, which is equivalent to roughly 15 per cent of world production.

## NICARO PLANT FOR SALE

The U.S. Government will soon dispose of its large nickel plant at Nicaro, Cuba—the second largest nickel facility in the non-Communist world—by leasing or selling it to a private firm. Terms on which the plant will be turned over to private enterprise will be issued later. The plant, representing a total Government investment of $85,000,000, was built during the last war and was reopened and expanded during the Korean emergency. It is currently operated for the Government by the Nickel Processing Corporation, the majority of whose stock is held by National Lead. Cuban interests own the minority portion. National Lead's contract to operate Nicaro expired on June 30, but has been extended for a further six months.

The Government's decision to dispose of Nicaro reflects the prospect of a substantial increase in supplies of nickel from commercial sources during the coming years. The terms for leasing or selling the plant will nevertheless include a provision guaranteeing that, in the event of future need, a certain portion of the plant's output will be available to the Federal Government.

## AWARDS FOR MARKETING

Our contemporary, *American Metal Market*, has created three awards to be presented at the annual National Metal Exposition in Chicago on November 5. These awards will be made to firms or individuals in the U.S. metalworking industry who have made significant contributions in the past five years in developing new markets or new uses for metals in applications previously dominated by non-metallic materials. Separate awards will be made in each of three categories: (1) stainless steel and nickel, (2) copper, lead and zinc, and (3) aluminium, magnesium and titanium.

## JAPAN'S ALUMINIUM EXPORTS

Reports from Tokyo indicate that Japan may soon be back in the export market after a period of high demands, when exports were strictly regulated and foreign tonnage was being brought in. Domestic demand now seems to be levelling off and, with output steadily rising, the industry has been urging that resumption of exports be permitted. It is estimated that export of primary metal would be possible at a price equivalent to 25 c. a lb. At this price a ready market could be obtained in South-east Asia, the Middle East and the Near East.

Three leading Japanese aluminium refineries have decided to revive "special prices" for their products sold to rolling mills for export production. The new price has been fixed at 210,000 yen per ton, which is about 10,000 yen lower than the price for domestic consumers. It will be effective from next month. The system was suspended in March this year under the pressure of sharply increased requirements from domestic consumers of aluminium.

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Further expansion plans have been announced by the Norwegian State-owned aluminium producers, A/S Ardal and Sunndal Verk, which will bring the output capacity of the plant in Ardal to nearly 100,000 tons a year by 1963. At present this plant is producing at the rate of 28,000 tons a year.

Tube Investments and the Reynolds Metal Group, of the U.S., have agreed to combine the interest and activities of both groups in the aluminium industry in the U.K.

### GRAPHITE IN 1956

World production of natural graphite in 1956 decreased 7 per cent from 1955, states the Bureau of Mines, U.S. Department of the Interior. This decline is accounted for by a 32 per cent decrease in the output of amorphous graphite in the Republic of Korea. Production in virtually all other countries increased moderately. The world total is estimated at 270,000 s.tons, of which Korea produced 67,367 tons, Mexico 32,655 tons, Austria 20,597 tons, Ceylon (exports) 16,787 tons, Madagascar 15,916 tons, and West Germany 12,878 tons.

Domestic consumption of natural graphite in the U.S. during 1956 was 11 per cent lower than in the previous year. The major decreases were for batteries, 26 per cent; foundry facings, 21 per cent; and steelmaking, 14 per cent. Increases were reported for carbon brushes, 21 per cent, and lubricants, 15 per cent.

### PST!!! WHO WANTS COBALT?

Metal men in the U.S. are intrigued by the recent theft of cobalt valued at $80,000, which had been imported from the Belgian Congo. The thieves must have been equipped with heavy materials handling equipment, because the stolen metal was in 16 drums each weighing one l.ton. They are now faced with the awkward problem of disposing of their booty, for buyers and sellers of cobalt are relatively few, while the rigid export controls make it extremely difficult to send stolen material out of the country. Enquiries from interested buyers will be treated in the strictest confidence!

## COPPER · TIN · LEAD · ZINC

*(From Our London Metal Exchange Correspondent)*

In common with the Stock Exchange and all other commodity markets the Metal Exchange was stunned by the rise in the Bank Rate to 7 per cent last Thursday and it is apparent from the smaller turnovers of the last few days that traders have still not made up their minds as to the direct consequences of this. A more ominous factor, however, is the repercussions that the promised additional measures still to be announced may have on the consumption of metal in this country.

### COPPER'S MORE "BEARISH" OUTLOOK

Last week it was stated that the copper market was now struggling to find a new level and this process has been rendered all the more difficult by the financial happenings referred to above. The first result has been the strengthening of sterling which in turn has caused some liquidation by those people who bought copper as a hedge against devaluation, but it is believed that this process is by no means complete. A more bearish outlook has become general as traders are afraid that the additional financial measures affecting the U.K. economy must cause some lessening in the consumption of copper even if labour troubles are avoided, and with no apparent prospect of there being any further reduction in world output for the time being, the majority are now talking of a new price level around the low point of £185 established earlier this month. Stocks in official warehouses again increased to 17,778 l.tons and this in conjunction with dearer money has caused the contango to widen, and it is expected that it will remain at a figure between £4 to £5 for some weeks to come.

The improbability of further production cuts has been underlined by messages from Chile saying that the government there is examining ways and means of supporting the small and medium mines so as to obviate the necessity of their closing down, whilst in other places voices have been heard expressing the view that low-cost producers should not have to suffer in order to maintain their higher-priced competitors in business.

In the U.S. the prospects of an autumn boom appear to be fading and the continued fall on Wall Street is doing nothing to engender confidence in the maintenance of the present rate of consumption of non-ferrous metals, although the figures for August just published give the background for the reported optimism amongst copper fabricators at that time. The figures show that orders booked in August were equivalent to 110,169 s.tons of refined copper, which was the highest for any month since May; it is, however, doubtful whether this improvement will be maintained throughout September.

The whole price structure is reported as being a little insecure, as there is talk of the producers' price having to be reduced from 27 c. per lb., whilst Customs Smelters report poor business at 26 c. per lb. and export copper is moving slowly as low as 24½ c. per lb. Experts would not be surprised if this whole structure moves down 1 c. per lb. after the end of the month.

### TIN OUTPUT STILL DECLINING

The tin market continues to maintain a steady undertone, although consumer demand has been less satisfactory in recent weeks and buying as a currency hedge has now ceased. The main prop of the market is the existence of the Buffer Stock Manager and the knowledge that he has sufficient funds at his disposal to be able to absorb any possible surplus which may appear in the coming months, provided that there are no large additional tonnages of metal from behind the Iron Curtain. The latest International Tin Council's statistics show amongst other things that the production of tin metal during the first half of 1957 amounted to 84,400 l.tons, compared with 89,000 l.tons for the similar period of 1956; they also give a world consumption in May of 13,800 l.tons, which was slightly above the average for the previous three months, although world tinplate production for the month was the lowest since the summer of 1956.

The figures show in general that the downward trend in production continues, whilst consumption shows a slightly upward trend, a decline in the U.S. being more than counterbalanced by increases elsewhere. On Thursday morning the Eastern price was equivalent to £744½ per ton c.i.f. Europe.

### LEAD-ZINC IN SUSTAINED DEMAND

Once again there is little to report on the lead and zinc markets, the prices of both metals having been affected far less than copper by the recent economic events. Demand for both metals remains satisfactory, and it is generally believed that there is now little surplus production taking place, especially as the U.S. stockpile continues to buy its monthly quota and it is thought that in September 10,000 s.tons of zinc and 5,000 s.tons of lead will again be bought. As both contracts are on an "ex-ship" basis, the rise in interest rates does not have the same direct impact as in the case of copper and tin, and it seems that in trying to visualize the probable trend in prices, more attention must be paid to the overall effects on industrial consumption of the new measures, rather than to any specific point having a direct bearing on lead and zinc.

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One interesting piece of gossip during the week has been about the paragraph in one of the national papers mentioning the possibility of the introduction of an aluminium market on the Metal Exchange. The chairman replied promptly to this with a statement saying that no approach had been made to the Committee of the Exchange, but that this body would be very willing to consider any proposals — adding, however, that there would have to be certainty that the market would succeed and would not become lifeless, as did the short-lived silver market in the late 'thirties: it is generally assumed that he meant by this that the market would have to have the support of at least one of the major producers.

Closing prices and turnovers are:

**THE WEEK ON THE L.M.E.**

| | Sept. 19 *Buyers* | *Sellers* | Sept. 26 *Buyers* | *Sellers* |
|---|---|---|---|---|
| COPPER | | | | |
| Cash .. .. | £196½ | £197 | £191½ | £192 |
| Three months.. | £201½ | £202 | £195 | £195½ |
| Settlement .. | £197 | | £192 | |
| Week's turnover | 11,750 tons | | 6,700 tons | |
| LEAD | | | | |
| Current ½ month | £89½ | £89¾ | £89 | £89½ |
| Three months .. | £90¼ | £90½ | £90 | £90¼ |
| Week's turnover | 3,825 tons | | 4,250 tons | |
| TIN | | | | |
| Cash .. .. | £743½ | £744 | £740½ | £741 |
| Three months .. | £744 | £744½ | £740 | £740½ |
| Settlement .. | £744 | | £741 | |
| Week's turnover | 1,125 tons | | 480 tons | |
| ZINC | | | | |
| Current ½ month | £73 | £73½ | £71½ | £71½ |
| Three months .. | £73½ | £73½ | £72½ | £72½ |
| Week's turnover | 3,374 tons | | 6,750 tons | |

**London Metal and Ore Prices appear on page 372.**

*Mining Finance*

# Anglo American Group Dividends

Anglo American Corporation of South Africa has maintained its 1957 interim dividend at 20 per cent on the 10s. Ordinary shares for the seventh successive occasion. But the latest payment is on the 10 per cent higher capital of £4,309,438 following the one for ten bonus share issue made last April. For each of the past three years Anglo American's total distribution has been brought up to 70 per cent with a final of 50 per cent. In 1956 the payment was made out of available earnings equivalent to 109 per cent. In the current year there will be the further important growth of income from the corporation's large stake in the Orange Free State gold field which should do much to offset the falling away in base-metal revenue especially that from copper.

If the latter had been still buoyant it would have been permissible to hope that Anglo American's dividend expansion over the past decade would have been resumed. As it is, there is little anticipation of anything more than a maintenance of the year's dividend on the higher capital. On this basis Anglo American at 127s. 6d. would yield 6.5 per cent after allowing for double tax relief. This does not look very high in relation to a 7 per cent Bank Rate, but "Anglo" traditionally tend to stand on a relatively low yield basis, the theory, of course, being that the corporation, with its huge ramifications covering nearly every type of mining and its dynamic policy in opening up new mines, is a growth concern of the first order.

### AFRICAN AND EUROPEAN

Another mining finance member of the Anglo American group, African and European Investment, is resuming interim dividends after an interval of nine years. This change of policy no doubt stems from the fact that the company has now entered on an era of higher distributions as a result of its growing O.F.S. gold income via its holdings in Welkom, President Brand and President Steyn. This is only a fraction over that of the 10s. stock unit for six years in a row, African and European raised its dividend to 3s. 3d. The 1957 interim is 1s. Although the board's statement naturally contains no hint of any such happening, it will be surprising if in the circumstances stockholders do not regard this as an indication that the final, due next March, will bring the 1957 total up to more than last year's level.

These are early days to venture on any estimates, but a minimum of 3s. 6d. would be a reasonable expectation. On the 1956 distribution African and European at 56s. 3d. give a yield of 6.7 per cent after allowing for double tax relief. This is only a fraction over that on the parent concern, Anglo American. This seems to underline the fact that the near-term dividend expansion prospects for this junior partner in the Anglo group are regarded by the market as being more promising than that for Anglo American itself.

### DE BEERS

Another major component of the Anglo American set-up, De Beers Consolidated Mines, also recently declared its 1957 interim, namely an unchanged 80 per cent on the deferred capital of £4,083,819 in 5s. shares. For the past five years this king-pin of what used to be regarded as a highly-fluctuating industry has paid interims of 80 per cent followed by finals of 120 per cent. Few people will be looking for any change in the pattern for 1957.

The latest pointer to actual diamond revenue is due to be announced in about a week's time in the shape of the world sales of the group's marketing organization for the third quarter. Those for the first half of the year were encouraging enough, the total of £37,700,000 being slightly in excess of the annual rate represented by the record 1956 total of £74,500,000. It will be surprising indeed if there is not some falling off in the third quarter. In particular, lower sales of industrial stones seem likely in view of the cessation of U.S. stockpiling of this class of diamond as from the beginning of this year. The large-scale smuggling from Sierra Leone is also unlikely to be helping the Central Selling Organization's total for industrials.

It should not be overlooked that the

## LONDON MARKET HIGHLIGHTS

The first reaction of the Kaffir market to last week's Bank Rate news was a sharp all-round advance in prices. Share dealers then found that buying response was insufficient to sustain the movement — in view of the chaos elsewhere in markets on that day this lack of response was hardly to be wondered at—and prices soon turned easier. On subsequent days concern felt over the liquidation taking place elsewhere resulted in a further swift marking down of gold shares as a precautionary measure to stave off any selling of Kaffirs to pay for losses in other markets. By Tuesday afternoon it became clear that the fortnightly settlement had passed off without undue difficulty. Gold shares have since begun to recover with the rest of the share market.

A significant point about the gold share market's behaviour has been that throughout the past week there has never been any pressure to sell. Such selling as has taken place has been easily absorbed. Furthermore, although the Chancellor's shock move and subsequent statements on sterling have effectively staunched any devaluation or freer exchange rate talk that could otherwise have have been expected, Paris and Johannesburg have been willing to buy gold shares.

At the time of writing, the market is tending to recover. For example, Free State Geduld, after having spurted to 76s. 6d. immediately after the Bank Rate news and later fallen to 68s. 9d. are now 71s. 3d., while "Ofsits" are at present 53s. 3d. after having been up to 56s. 6d. and down to 51s. 10½d. Generally speaking, other gold shares have moved in a similar fashion, but less violently. Among the finance shares, Central Mining have been a particularly weak spot, falling from 65s. to 58s. 9d. at one time before rallying to 60s. 7½d.; selling is believed to have been an aftermath of the abortive attempt to take over the company last year. Diamonds have been depressed by the fall on Wall Street, De Beers having lost 2s. on the week to 98s. 9d. and Anglo Trust ¼ to 8¼. Among Platinums, the latest reduction in the U.S. metal price and the Rustenburg decision not to commission their latest plant have been reflected in share quotations and Potgietersrust have come back to 10s. 3d.

There has not been much recovery in base-metal share prices. Apart from the psychological effect of the Bank Rate decision on the share market, the Rate must also discourage already cautious metal consumers from operating on much more than a hand-to-mouth basis. In addition to this, there have been special factors in operation in some share prices. In particular, Consolidated Zinc have dropped from 67s. to 63s. 3d. on consideration of the present over-supply of aluminium in relation to this company's huge bauxite project. Another casualty has been Bancroft, now only 28s. Despite the recent official denial of rumours that the mine will have to close down, Cape sales have persisted on the view that at the present copper price it is doubtful whether this currently high-cost mine is operating profitably.

The rest of the copper share market has fallen substantially as forecast in these notes in past weeks. Apart from any other considerations, the lack of improvement in the metal price remains the underlying cause of weakness in copper shares. Particular sufferers in this group over the past few days have been Chartered (57s. 9d.), Rhokana (30½) and R.S.T. (17s. 6d.); all of which have fallen this week to their lowest prices for this year.

Tin shares have also dropped but in this case, losses have not been particularly severe. The statistical position of tin remains good and the strong financial backing of most tin share companies makes it seem unlikely that any real selling will be seen.

Elsewhere, mining stocks with a more than usual speculative following have suffered. Among them substantial losses have been incurred by Consolidated Murchison (37s. 6d.) and St. John d'El Rey (37s. 3d.). Dollar stocks have fallen and with them the dollar premium at one time dwindled to 8¼ per cent. In this last group, International Nickel have dropped $17½ to $158¼.

De Beers group investments outside the diamond industry should be beginning to play an increasingly important part in dividend prospects. De Beers Investment Trust, for instance, should be gaining a growing revenue from its Orange Free State gold-mining interests.

On an unchanged dividend for 1957 De Beers Deferred at 97s. offer a yield of 12.1 per cent after allowing for double tax relief. This is an atractive return. That it should be so high seemingly lies at the door of Wall Street. Despite its diversification of interests De Beers is quite rightly still primarily associated with diamonds and the prosperity or otherwise of this trade is still wrapped up with the state of the American economy. Thus, in practice, the fact has to be faced that De Beers could move onto a yet higher yield basis if the downward trend of Wall Street persists.

### B.H. SOUTH PAYS THE SAME

The autumn season of lead-zinc company dividends has opened well with a maintained payment from Broken Hill South which has declared a final of 90 per cent on the £800,000 capital (Australian currency) in 5s. stock units making 170 per cent for the year to June 30 last. A record profit after tax of £1,969,430 is reported against £1,954,120 for 1955-56. It was announced in July that the 1956-57 production had differed little from that of the preceding year. During most of the period lead and zinc prices were maintained at a high level. It was not until last April that the real break in these occurred. At the beginning of April, for instance, lead was around £112 per ton on the London Metal Exchange and zinc £99. Now they are just over £89 and just under £72 respectively. The lower earnings therefrom, in other words, will be making themselves felt in the current financial year to next June.

The yield on Broken Hill South at 71s. 3d. is 9.5 per cent after allowing for the exchange loss but without taking into account the certain amount of double tax relief that should be available to U.K. holders. Unless the metal prices take a decided turn for the better B.H.S. must therefore be regarded as likely to go lower rather than higher as the decreased dividend probability for 1957-58 comes more firmly into view.

### G.M.K. DIVIDEND DOUBTS

The latest dividend declared by Gold Mines of Kalgoorlie (Aust.) seems to have caused some confusion. The company has been in the practice of paying two dividends per annum. But for the year to March 31 last there was only one distribution, it being stated in April that consideration of the dividend then due had been deferred because considerable capital expenditure had been incurred and receipt of a substantial portion of the company's income was being delayed owing to gold being tied up in concentrates. The dividend of 9d. Australian now announced, thus in effect appears to be the balance payment for 1956-57. It would make 1s. 6d. for that year the same as for the preceding year.

In practice, three payments will now presumably fall to be dealt with in the 1957-58 accounts. There is, however, no official confirmation of this. The interim was declared in October last year. If this pattern is to be adhered to it ought surely to have been more convenient to announce and pay it at the same time as the present postponed dividend. Shareholders are entitled to a clarification of the position. Otherwise they will be left with the uneasy but probably unjustified suspicion that they may be going to miss one of the normal half-yearly distributions. On a 1s. 6d. basis G.M.K. 10s. shares at 12s. yield 10 per cent after allowing for the exchange loss to U.K. holders. In viewing the prospects it should be borne in mind that the company depends to a large extent for its earnings on the Australian gold subsidy. The period of this has now been extended and its effect stepped up to some extent.

### WESTERN MINING

Western Mining Corporation holds a 26 per cent interest in Gold Mines of Kalgoorlie. The latter's dividend situation is thus also of vital interest to this company. It was explained in the Western Mining annual report that the main cause of a decline in profits for the year to last March was the lower dividend income from G.M.K. At the recent meeting in Melbourne the chairman, Mr. G. Lindesay Clark, drew attention to the increase in the Australian gold subsidy. He said that all shareholders should note with satisfaction this indication of the importance which the Federal Government attached to the maintenance of gold production. The accompanying increase in development allowance was also especially welcome because this was the effective direction in which to employ any additional funds which might become available to the industry.

Mr. Clark also referred to Western Mining's intention to search for deposits of metals other than gold in order to give greater diversity to the business as a whole. Any ventures which went beyond the initial prospecting stage would require more funds. Rights issues would consequently be made or partners sought when any deposit warranting serious development was found, he concluded.

### INDIAN COPPER

Of main interest at the recent meeting in Calcutta of the Indian Copper Corporation were the views of the chairman, Mr. P. E. G. W. Parish, on the prospects for 1957. He said that the company's cost of production was somewhere about midway between the highest and lowest costs of copper-producing companies in other parts of the world. At present prices (at the date of the meeting copper was £188 per ton) the company could expect to show a "reasonable return", but if, he went on, the world price continued to fall either owing to over-production or to a recession in demand by consumers then a point must come when profits would end and losses begin.

The chairman's own views were that the world price would not fall below Indian Copper's cost of production but this presupposed that this cost would not be inflated by wage demands. Since the chairman's remarks the price of copper in London has recovered to £191. Indian Copper's financial and working results were a record in 1956.

### THREE REDRUTH-MALAYAN DIVIDENDS

The directors of Gopeng Consolidated, of Pengkalen and of Rambutan, have each declared a third interim dividend in respect of the year 1956-57.

*Gopeng.* The dividend is for 9d. per stock unit of 3s. 6d. Previous interims in respect of 1956-57 have totalled 4s. per 5s. stock unit (i.e., prior to capital repayment) compared with total distributions of 8d. per 5s. unit for the preceding year.

*Pengkalen.* The dividend is for 9d. per 1s. share (ordinary and preferred). Previous interims for 1956-57 paid on the pre-capital repayment shares of 5s. each amounted to 1s. 3d. per ordinary share and 1s. 9d. per preference share, compared with a total of 3s. per ordinary 5s. share and 3s. 6d. per preferred 5s. share for the previous year.

*Rambutan.* This dividend is for 1s. per 5s. share. Previous distributions in respect of 1956-57 amounted to a further 1s. per 5s. share plus a 1s. per pre-second capital repayment share of 12s. 6d. Distributions for the preceding year totalled 5s. 6d. per £1 share followed by 1s. per 12s. 6d. share following the first capital repayment.

## Financial News and Results

**Clutha River.**—Clutha River Gold Dredging, the New Zealand gold-dredging concern, re-enters the list of dividend payers with the declaration of 5 per cent per 2s. share on the £225,000 issued capital. Net profit for the year ended March 31, 1957, after meeting all charges including £10,140 in taxation, totalled £7,640. This compares with net earnings in the preceding year of £1,514. The 5 per cent dividend—the first payment since 1952-53 when 6 per cent was paid—absorbed £4,792. The sum of £2,500 has been allocated to general reserve. The year's improved earnings are due to a considerably better gold recovery amounting to 6,027 oz. of bullion from 2,886,000 cu. yd. compared with 5,459 oz. from 3,064,000 cu. yd. In his statement accompanying the report and accounts, the chairman, Mr. F. G. Payne, anticipates that better gold values than these may be expected for about the next five years. The chairman also indicates that the company should be in a position to benefit from the provisions relating to overseas trade corporations in the recent Finance Act. Meeting, October 16.

**Sir Lindsay Parkinson and Co.**—At £115,111, profits after tax of Sir Lindsay Parkinson and Co. showed a good advance over the 1955 figure of £97,091. An increased final of 12½ per cent makes a total for the year of 15 per cent against 9 per cent last year. An extract from the chairman's statement appears on page 374.

**Powell Duffryn Earns Same — Pays Same.**—Consolidated net profits after tax of Powell Duffryn Ltd. for the year to March 31, 1957, were virtually unchanged at £1,038,433, but a transfer from taxation reserve brought the total consolidated net profits up to £1,216,433 against £1,070,232. The final dividend of 10 per cent is the same as last year, making an unchanged total of 16 per cent for the year. Sir Henry Wilson Smith, K.C.B., K.B.E., is chairman. An extract from Sir Henry's circulated statement appears on page 376.

# FREE STATE DEVELOPMENT AND INVESTMENT CORPORATION, LIMITED

(Incorporated in the Union of South Africa)

**Statement to Members by the Chairman, Mr. D. A. B. Watson, on the Directors' Report and Accounts for the period ended June 30, 1957.)**

(Issued to Members prior to the Thirteenth Annual General Meeting to be held in the Board Room, Consolidated Building, corner of Fox and Harrison Streets, Johnnesburg, on Thursday, September 26, 1957, at 10 a.m.)

The report and accounts deal fully with the affairs of your company for the period under review. The following comments deal with certain matters which are of particular interest to your company.

**Investments:** There was no change during the period in the company's holding of shares and units of stock in other companies.

The company's major share investment is its holding of shares in Freddies Consolidated Mines, Ltd. The affairs of Freddies Consolidated were reviewed in the Directors' Report and in the Chairman's statement submitted to the annual general meeting in May of this year. (Copies of the statement are available to members of this company on application to the Head Office in Johannesburg or to the London Secretaries.) Published working results for July and August showed continued improvement in the operations on the mine. The company is proceeding with its present policy of exploration of the area and the building up of ore reserves without drawing upon capital funds.

**Prospecting:** Prospecting activities have been confined to your company's contribution to and interest in the prospect known as Western Areas Prospect which is being conducted by Johannesburg Consolidated Investment Company, Limited on the Far West Rand.

A locality plan of the prospect area is attached to the annual report. It was announced by Johannesburg Consolidated Investment Company, Limited, recently that the initial prospecting work in the area has been completed and that a certain area underlain by payable reef has been defined but that after taking into account the various circumstances at present applicable to the establishment of a new mine, exploitation of the area has been deferred for the time being. The question of whether and when the area should be exploited will remain under consideration. For the benefit of shareholders the statement made by Johannesburg Consolidated Investment Company, Limited, on this matter is quoted below in full.

September 23, 1957. D. A. B. Watson, chairman.

**Extract from the Directors' Report of Johannesburg Consolidated Investment Company, Limited:**

"During the year drilling was continued in the areas on and around the farms Modderfontein No. 4, Waterpan No. 45 and Jachtfontein No. 99, situated about 18 miles south of Randfontein. The programme of initial prospecting work has now been completed and as a result it has been possible to define a compact area which appears to be underlain by payable reefs of the Ventersdorp Contact Reef Series and the Upper Elsburg Series.

"33 Boreholes have been completed in the whole of the area under investigation; in 24 boreholes one or more of the reef horizons was intersected and 16 boreholes intersected reefs of economic value. In the compact defined area mentioned above 18 boreholes were completed, all of which intersected reefs and 16 of which intersected one or more payable reefs.

"It is estimated that the defined area may be underlain by some 68 million tons of ore likely to be payable under present day conditions, the average value of the borehole samples of the payable ore being 9.3 dwts. over a width of 60 inches. Of this tonnage, some 50 million tons is contained in the Elsburg Series, having an estimated sampled value of approximately 8.5 dwts. and some 18 million tons at a somewhat higher value are contained in the Ventersdorp Contact Reefs.

"After applying the necessary discounts to the sampled values and after allowing for the dilution of ore which is normal in a producing mine, it has been estimated that the recovery to be expected from the milling of the above tonnages on all reefs might be of the order of 5.5 dwts. to 6.0 dwts. per ton. The reefs are of a considerable thickness and, being concentrated in a relatively small area, would lend themselves to selective mining which would, of course, result in a higher yield.

"The economic horizons, which are overlain by dolomites and lava, lie between 2,650 ft. and 6,500 ft. below surface, a large proportion of the estimated tonnage being at a depth of not more than 4,600 ft. below surface.

"It would appear that there is a possibility of establishing a mine in which there would be available large tonnages of medium grade ore. The capital expenditure required to bring such a mine to production is considerable, while the profit margin under present conditions might be in the order of 20s. to 30s. per ton milled. The effects of current inflationary trends upon present estimates of capital expenditure and upon the future estimated working costs are factors which have been considered in arriving at a decision as to whether to exploit the area at the present time. After careful consideration of the various circumstances which at this particular juncture are applicable to gold mining and to the establishment of a new gold mine by your company, the Board has decided to defer exploitation of the area for the time being. The question of whether, and when, the area should be exploited will remain under consideration by the Board in the light of all the circumstances relevant from time to time."

# LONDON METAL AND ORE PRICES, SEPT. 26, 1957

## METAL PRICES

Aluminium, 99.5%, £197 per ton
Antimony —
English (99%) delivered, 10 cwt. and over £210 per ton
Crude (70%) £200 per ton
Ore (60%) basis 20s. 0d./21s. 0d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 11s. 3d. lb.
Cerium (99% nett), £13 18s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s.-19s. lb.
Germanium, 99.99%, Ge. kilo lots 3s. 4d. per gram
Gold, 250s. 5½d.

Iridium, £27/29 oz. nom.
Lanthanum (98/99%) 15s. per gram
Manganese Metal (96%-98%) £310
Magnesium, 2s. 5½d. lb,
Nickel, 99.5% (home trade) £600 per ton
Osmium, £20/22 oz. nom.
Osmiridium, nom.
Palladium, £7 10s./£8 0s. oz.
Platinum U.K. and Empire Refined £31/£34 oz,
Imported £28 10s./£29 10s. nom.
Quicksilver, £85 ex-warehouse
Rhodium, £42 oz.
Ruthenium, £15/£17 oz. nom.
Selenium, 75s. nom. per lb.
Silver, 78¾d. f. oz. spot and 78¼d. f'd.
Tellurium, 15s. 16s. lb.

## ORES AND OXIDES

| | |
|---|---|
| Bismuth | 65% 8s. 6d. lb. c.i.f. 20% 3s. 3d. lb. c.i.f. |
| Chrome Ore— | |
| Rhodesian Metallurgical (semifriable) 48% | £19 5s. 0d. per ton c.i.f. |
| " Hard Lumpy (45%) | £19 5s. 0d. per ton c.i.f. |
| " Refractory 40% | £13 0s. 0d. per ton c.i.f. |
| " Smalls 44% | £18 0s. 0d. per ton c.i.f. |
| Baluchistan 48% | £12 0s. 0d. per ton f.o.b. |
| Columbite, 65% combined oxides, high grade | 185s./190s. 0d. per unit |
| Fluorspar— | |
| Acid Grade, Flotated Material | £22 13s. 3d. per ton ex. works |
| Metallurgical (75/80% Ca $F_2$) | 156s. 0d. ex works |
| Lithium Ore— | |
| Petalite min. 3½% $Li_2O$ | 47s. 6d./52s. 6d per unit f.o.b. Beira |
| Lepidolite min. 3½% $Li_2O$ | 47s. 6d./52s. 6d. per unit f.o.b. Beira |
| Amblygonite basis 7% $Li_2O$ | £26 5s. per ton f.o.b. Beira |
| Magnesite, ground calcined | £28 0s./£30 0s. d/d |
| Magnesite Raw (ground) | £21 0s./£22 0s. d/d |
| Manganese Ore Indian | |
| Europe (46%-48%) basis 130s. freight plus 5% surcharge | 131d./133d. per unit c.i.f. |
| Manganese Ore (43%-45%) | 106d./108d. per unit c.i.f. |
| Manganese Ore (38%-40%) | 100d./102d. per unit (including duty) |
| Molybdenite (85% basis) | 8s. 5d. nom. per lb. (f.o.b.) |
| Titanium Ore— | |
| Rutile 95/97% $TiO_2$ (prompt delivery) | £48/£49 per ton c.i.f. Aust'n |
| Ilmenite 52/54% $TiO_2$ | £11 10s. per ton c.i.f. Malayan |
| Wolfram and Scheelite (65%) | 112s. 6d./117s. 6d. per unit c.i.f. |
| Vanadium— | |
| Fused oxide 90-95% $V_2O_5$ | £12½-£13½ per unit c.i.f. |
| Zircon Sand (Australian) (65-66% $ZrO_2$) | £18 per ton c.i.f. |

# WESTERN MINING CORPORATION LIMITED

## STEADY DIVIDEND PROGRAMME

The Annual General Meeting of Western Mining Corporation, Ltd., was held on September 12 in Melbourne. **Mr. G. Lindesay Clark** (the Chairman) presiding.

In his speech the Chairman, in referring to the retirement of Mr. W. S. Robinson as Adviser to the Board, referred in detail to the contribution which he had made to the development of Australian mining, and said: "I am sure you will wish that Mr. Robinson's great services to gold mining should be recorded and join with me in best wishes to him".

Reviewing the year's results (all figures are quoted in Australian currency), the Chairman said:

Net profit for the year was £242,059 compared with £291,536 last year. The major item accounting for the reduction of approximately £49,000 was a drop of £28,000 in the dividend received from Gold Mines of Kalgoorlie (Aust.), Ltd.

The Company has maintained a steady dividend programme for the year, paying dividends Nos. 18 and 19, each of 6d. per fully paid share and 3d. per partly paid share. After the close of the financial year a further dividend, No. 20, of 6d. per share, was made payable on August 9, 1957, on the whole of the issued shares of the Company.

The Western Australian group of companies treated 1,219,315 tons of ore for a recovery of 311,043 oz. of fine gold for the year.

The operations of the various companies have been reviewed in the annual reports and at their respective meetings (the Chairman then referred to the principal features).

All shareholders must note with satisfaction the importance which the Federal Government attached to maintaining gold production, as shown in the recent increase in subsidy. The increase in development allowances is specially welcome.

The report and accounts were adopted.

# KALGOORLIE SOUTHERN GOLD MINES

The annual general meeting of Kalgoorlie Southern Gold Mines No Liability was held on September 11 at Melbourne.

**Mr. G. Lindesay Clark** (the Chairman) presided and, in the course of his speech, said:

(All figures are quoted in Australian currency.)

Development expenditure for the year totalled £24,212, most of which was spent on diamond drilling and geological investigation. After transferring all expenditure to the Development Account this Account stood in the balance sheet at £168,291. Last year expenditure on new plant and machinery amounted to £1,668. At March 31, 1957, net current assets stood at £13,995.

Following the caving of hole S.E.9 hole S.E.10 was started. This hole reached a depth of 5,440 ft. where drilling has been suspended. From 3,025 ft. to 5,071 ft. the hole passed through quartz dolerite greenstone similar to the host rock of the producing area of the Kalgoorlie field. A number of small quartz spurs was intersected in the area, assaying from 1 dwt. to 2 dwts. over width from 4 to 12 in. Beyond the quartz dolerite the hole passed into Black Flag sediments also showing occasional mineralized quartz spurs, one of which assayed 4.0 dwts. over 10 in.

Drilling, to date, has shown the Kalgoorlie folds weaken south of the field and are replaced further to the south and west by the Cavalier folding. The western leg of the Cavalier folding reaches the surface but the Cavalier Anticline to the east of the syncline opposite No. 7 Hole is some 3,000 ft. below the surface. Holes S.E.7 and S.E.10 have cut the western side of the syncline but have not tested the eastern side, which is the comparable portion to the Eastern Lode System of Kalgoorlie, which is the more extensive and productive portion of that field.

The drill being used by Kalgoorlie Southern Gold Mines for the inclined drilling required for this prospecting is the largest of its type available and has been adequate for all holes prior to S.E.7. In the southerly area now being tested, a larger drill is required to cover greater distances laterally and to reach greater vertical depths than is possible with the present drill. Preliminary designs have been made for a drill capable of reaching an inclined depth of about 7,500 ft., and consideration is now being given to its construction.

The report and accounts were adopted.

# GOLD MINES OF KALGOORLIE (AUST.)

The annual general meeting of Gold Mines of Kalgoorlie (Aust.), Ltd., was held on September 9 in Melbourne.

**Mr. G. Lindesay Clark, B.Sc., M.M.E.** (the Chairman) presided and, in the course of his speech, said:

(All figures are quoted in Australian currency.)

Net Profit shown by the Accounts for the year ended March 31, 1957, amounted to £322,033. This amount includes £41,880 Gold Subsidy in respect of the 1955-56 year, leaving £280,153 attributable to the 1956-57 operating year, comprised of £182,218 Gold Subsidy and £97,935 net profit on operations.

Capital expenditure during the year totalled £218,178, and the programme to complete the reorganization of the mines is still absorbing considerable funds and will continue to do so for the remainder of the current financial year.

One dividend of 9d. per share, paid in November, 1956, and absorbing £150,948, was declared during the year, your Board having found it necessary to defer further distributions pending an improvement in the cash position. At the balance date some £181,000 was tied up in gold in concentrates awaiting treatment by Cuming Smith and Mount Lyell Farmers Fertilisers. Treatment of these concentrates has been proceeding steadily since April. In addition, approximately £166,000 of subsidy had accrued but does not become actually receivable until after the close of the subsidy year on June 30. Payment is expected to be received at an early date.

Your Board will be considering a dividend later this month.

### Year's Operations

The past year was the first full year in which the output from all the mines recently taken over by Gold Mines of Kalgoorlie has been treated at the central mill. The mill averaged, for the year, 41,100 tons per four-weekly period. Ore treated for the year amounted to 534,309 tons, from which 137,518 ozs. of fine gold were recovered in bullion and concentrates, equivalent to a recovery grade of 5.15 dwts. per ton. This represents an 88.5 per cent recovery from a head grade of 5.81 dwts. per ton.

The total costs for the year were 75.7s. as compared with 71.6s. last year, the increase being mainly in mining. It is not expected that there will be any improvement in costs this year but, if economic conditions remain stable, costs should then fall as the reorganization becomes effective.

### Ore Reserves

Ore reserves at March 31, 1957, were estimated to be 1,467,000 tons averaging 5.8 dwts. per ton compared with 1,574,000 tons averaging 5.9 dwts. at March 31, 1956.

Last year, of 26,549 ft. of development, 32 per cent was in ore which assayed 9.5 dwts. over 64 in. width. Since the end of the year, 10,232 ft. of development has been done, of which 29 per cent was in ore averaging 11.2 dwts. over 67 in. In addition to this general development, 2,069 ft. of main ore and waste passes were completed during the year and a further 325 ft. since the end of the year.

The Chairman then outlined in detail the results of the development programme.

The report and accounts were adopted.

## RECENT INTERIM DIVIDEND ANNOUNCEMENTS

| *Company* | *Year ending* | *Divs. %* *Latest* | *Corresponding* | *Date payable* | *Total last year* |
|---|---|---|---|---|---|
| | | % | % | | % |
| Puket Tin | 31-12-57 | 10 | 15 | Oct. 2 | 30 |
| British Petroleum | 31-12-57 | 5*† | 5 | Oct. 11 | 15 |
| Kinta Tin | 31-12-57 | 62½‡ | 25 | Oct. 1 | 80§ |
| Tanjong Tin | 31-12-57 | 25 | 40 | Oct. 1 | 150 |
| "Chartered" | 30- 9-57 | 8½ | 10 | Oct. 11 | 35 |
| Malayan Tin | 30- 6-57 | 7½ | 10 | Oct. 31 | 40 |
| S. Malayan Tin | 30- 6-57 | 5 | 6¾ | Oct. 29 | 33¾ |
| Tehidy Minerals | 31-12-57 | 5 | 5 | Oct. 4 | 20 |
| Globe and Phoenix | 31-12-57 | 20 | — | Oct. 24 | 60 |
| S. Tronoh | 31-12-57 | 10 | 7½ | Oct. 9 | 27½ |
| Tronoh Mines | 31-12-57 | 10 | 7½ | Oct. 11 | 47½ |
| Ayer Hitam | 30- 6-57 | 5 | 10 | Oct. 22 | 40 |
| Ayer Hitam | 30- 6-58 | 5 | 5 | Oct. 22 | 20†† |
| Sungei Besi | 31- 3-58 | 15 | 10 | Oct. 18 | 50 |
| African and European | 31-12-57 | 10 | — | Nov. 14 | 32½ |
| Anglo American Corp | 31-12-57 | 20 | 20 | Nov. 14 | 70 |
| Broken Hill Pty. | 31- 5-58 | 5 | 5 | Oct. 4 | 10 |

* Tax-free. † On increased capital. ‡ On £48,000 capital.
§ On £120,000 capital. †† If no more paid.

# SIR LINDSAY PARKINSON & CO. LTD.

## IMPROVED RESULTS

## MR. A. E. PARKINSON'S STATEMENT

The Twentieth Annual Ordinary General Meeting of Sir Lindsay Parkinson & Co. Ltd. was held yesterday at the Piccadilly Hotel, London, W., **Mr. A. E. Parkinson,** the chairman, presiding.

The following is an extract from his circulated statement:—

The Accounts for the year 1956 show that the Group profit applicable to the Members of the Parent Company before Taxation amounts to £210,144 as compared with £114,462 for 1955. The charge for Taxation, after deducting £14,024 provision for earlier years no longer required, amounts to £89,527.

The Group Profit and Loss Account Balance carried forward amounts to £247,561 as compared with £172,406 brought in.

The Consolidated Balance Sheet shows a surplus of Current Assets over Current Liabilities and Provisions amounting to £472,058 compared with £214,528 last year.

### Contracts

**Home:** Work at home has continued satisfactorily. Our Building and Civil Engineering departments were successful in obtaining further contracts, and our operations on the production of Opencast Coal for the National Coal Board continued at a high level. In recent weeks two substantial long-term contracts have been obtained involving the recovery of some 3,371,000 tons of coal over the next eight years.

Members are no doubt aware that we have been entrusted with the construction of the new Lancaster By-Pass motor road for the Lancashire County Council, acting on behalf of the Ministry of Transport, and work has already commenced.

**Australia:** I mentioned last year the difficulties encountered in the Australian market, and the volume of work over the past twelve months has been considerably reduced.

**Canada:** Our problems arising in Toronto have now been finally resolved. As forecast last year a further provision has proved necessary in 1956. There will be no repetition of this in the 1957 Accounts. We retain our interest in our Montreal Subsidiary, which is showing satisfactory results.

**Cyprus:** Despite all the difficulties arising from the emergency conditions in the Island, work has continued satisfactorily. Continuance of this work is, of course, dependent upon Government policy.

**British Guiana:** This contract continues to show satisfactory progress and is due for completion towards the end of 1958.

**Ghana:** Work on the £8,000,000 Tema Harbour contract, which is being carried out in association with Messrs. John Howard & Co. Ltd. through a separate Company, Parkinson Howard Limited, continued throughout 1956. Considerable progress has now been made with the construction of the breakwaters and quays and erection of the on-shore buildings has commenced. As Members will appreciate, on a contract of this magnitude, covering a period of several years and involving the employment of some £1,750,000 worth of heavy civil engineering plant it is too early to assess the probable financial outcome.

### Dividends

In view of the improved results for 1956, the Board has decided to recommend a final dividend on the Ordinary Stock at the rate of 12½ per cent. (less tax) making a total for the year of 15 per cent. (less tax). This compares with a total dividend of 9 per cent. for the past two years.

### Conclusion

As I indicated last year, 1956 was a year which was not without its difficulties but the results show that we were able to overcome them. Your Board is hopeful that, apart from any unforeseen events, the improvement shown in 1956 will be maintained.

The value of contracts in hand by the Group at present is of the order of £20 million.

To my colleagues on the Board and to all our staffs and employees throughout the Group, I should like to express on behalf of myself and the Members, my appreciation for all that they have done in achieving the satisfactory results of the past year.

The report and accounts were adopted.

# THE CLIMAX ROCK DRILL AND ENGINEERING WORKS

## TURNOVER AGAIN INCREASED

## MR. RALPH EWING'S ADDRESS

The 44th annual general meeting of The Climax Rock Drill and Engineering Works, Limited, was held on September 25 in London, **Mr. Ralph Ewing, A.M.I.Mech.E.** (the chairman), presiding.

The following is an extract from his circulated address:—

Whilst turnover has again shown an increase compared with the previous year, the net trading profit, before providing for taxation, is reduced to £80,997 compared with £93,553.

It has, however, been necessary to provide this year the sum of £42,600 for taxation, as compared with £42,500 last year. Having made this provision for taxation, a balance of net profits of £38,397 is available for appropriation.

The fall in profits coupled with the Company's cash position would justify a slightly reduced dividend but, as net profits are today largely influenced by taxation, the Directors feel justified in taking an optimistic view of the future and maintaining the dividend at 7½ per cent less income tax, the same rate as last year.

### Company's Operations

Our total turnover is actually in excess of the previous year and while this is affected to some extent by the completion of the Air Compressor Contract for the Argentine Government, the addition is due to an increase in our general export trade and further expansion, principally at Home, in our sales of Maxam automation equipment.

Export markets have continued to be active, but suffered to some extent from the delivery position in the early part of the year. Competition still remains serious, particularly from Continental Manufacturers, and only a reduction in cost and selling price will enable us to be competitive in numerous export markets.

The chairman then reviewed the company's main traditional overseas markets, namely Africa, Australia, India, and continued:

Wherever opportunity offered, we have continued to improve our sales, particularly in Home and Commonwealth countries. Our Maxam Department, dealing with Maxam automation equipment, continues to expand and, to meet the demand, local manufacture has had to be undertaken in South Africa and Australia. We have also entered into an agreement with a well-known Company in France for the manufacture of this equipment, which will be sold through a combined Company known as Climax-France. It is anticipated that the efforts of this Organization will rapidly develop a new market.

While our order book is reasonably well filled, every effort is being made to obtain orders for new products or other work to replace certain sub-contracts which have now been completed.

The report was adopted and the dividend of 7½ per cent, less Income Tax, was approved.

## COMMERCIAL EVENTS

BTR Industries, Ltd. (formerly British Tyre and Rubber Co., Ltd.), has opened a new branch office and warehouse at Marshall House, Marshall Street, Birmingham 1 (telephone Midland 4602). The new office will be managed by Mr. D. H. Turner.

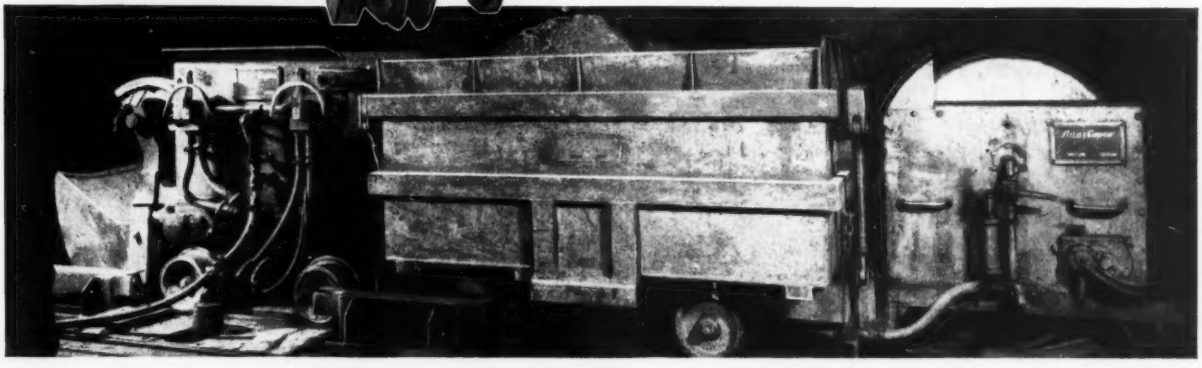
# Atlas Copco shuttle dumpers solve a major mining problem

## *Big savings in time, labour, costs*

Mechanisation of mine cars has shown the way to the solution of a major problem of ore and rock transportation. Air-driven shuttle-dumpers developed by Atlas Copco cut out strenuous manual operation, proved by physiological test to belong to the most exacting category of physical effort. These shuttle dumpers make fuller, more rational use of the advantages of mechanical loading through bigger car volume and shorter transport time.

Furthermore the tramming engine of loader and dumper can be synchronised during loading. This allows the aggregate to move quicker and dig the bucket deeper. Result? A big saving in time, both through faster movements and more effective filling of the bucket.

Atlas Copco U3N-32 Shuttle Dumpers have a 6-cylinder, 3 h.p. air-driven motor, giving a normal speed of about 330



ft. per minute. The capacity of the car body is approx. 2.62 cu. yds. of solid rock. Air consumption is approx. 70.5 cu/ft/min. The hose drum has a maximum capacity of 295 ft of $\frac{3}{4}$" hose, but by using the special swivelling connection at a distance of 295 ft. from the working face, a transport distance twice the length of the hose can be realised. The hose drum is driven by a valve-operated rotor motor which automatically winds and unwinds the hose. The hose drum and control board can be moved to either end of the dumper; this allows the car body to be tipped to whichever side is required, and on request the standard dumper can be fitted with an air cylinder for tipping.

**World-wide sales and service**

The Atlas Copco Group puts compressed air to work for the world. It is the largest group of companies specialising solely in the development and manufacture of compressed air equipment. It embraces Atlas Copco companies or agents manufacturing or selling and servicing Atlas Copco equipment in ninety countries throughout the world. For further details of the equipment featured here, contact your local Atlas Copco Company or Agent, or write to:—Atlas Copco AB, Stockholm 1, Sweden, or Atlas Copco (Great Britain) Limited, Beresford Avenue, Wembley, Middlesex.

**Atlas Copco**

*Manufacturers of Stationary and Portable Compressors, Rock-Drilling Equipment, Loaders, Pneumatic Tools and Paint-Spraying Equipment*

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# INDIAN COPPER CORPORATION

## RECORD RESULTS

The thirty-third annual general meeting of the Indian Copper Corporation, Ltd., was held on September 11 in Calcutta.

**Mr. Patrick E. G. W. Parish** (the Chairman), in the course of his speech, said:

Your Chairman last year was somewhat cautious concerning the possible results for the year now under review. He was perfectly right for the world price of copper had reached its peak of £434 per ton in March and a rapid decline was already in evidence. The price in September last year was £307 and this decline continued until the end of the year when the price of copper stood at £267. Last week it was £191.

### Selling Prices

Despite this heavy fall in price the selling prices of your Company's products averaged over the year 1956 were maintained above the previous year. These average prices were: Copper Ingots, £330 per ton against £309 per ton last year; Rolled Brass, £273 against £245; Yellow Metal Circles, £305 against £266; and Rolled Copper, £388 per ton as against £357 per ton last year.

The price structure of your Company's products must bear a close relationship to that of imported copper and with prices as they are today it is obvious that the spectacular results achieved during the past two years will not be repeated in the current year.

It is an impossible task to forecast the future trend of the world price of copper. Obviously when the price of copper was over £400 some mines, which in ordinary circumstances are uneconomic, were able to resume production, with the result that eventually the supply caught up with and then surpassed demand. The decline in price since the peak in March, 1956, is the consequence. At what stage uneconomic mines will go out of production to the extent that supply and demand are again in balance is difficult to say. Experts have said that £230 per ton might be a reasonably economic price. The price today is well below that.

So far as your Company's mine is concerned, the cost of production is somewhere about midway between the highest and lowest costs of copper-producing companies in other parts of the world and at present prices we can expect to show a reasonable return, but if the world price continues to fall, either owing to over-production or to a recession in demand by consumers, there must come a point where profits end and losses begin. My own view, for what it is worth, is that the world price will not fall below our cost of production, but this, of course, presupposes that our cost of production will not be further inflated by wage demands. The settlement reached in January this year with the two unions representing our employees will increase the direct cost of wages by about 13 per cent. It is to be hoped that their leaders will realize the simple economics of the matter and not press their demands to such an extent as to put our mine among the uneconomic producers.

You may have seen references recently in the Press to a renewed dispute with the union at Mosaboni. As the matter is now in the hands of the Conciliation Officer, I think it is better for me to say no more at the moment.

The financial and working results are a record in the annals of the Company. These results have been achieved by the increase in the selling prices, together with an increase in production of ore and copper.

The record of ore milled, amounting to 421,131 short tons, is a direct result of the policy commenced a few years ago for an extensive prospecting and development programme with the object of opening up all the workable areas of the Company's leasehold to maintain and, if possible, to increase production. This policy has not only increased production but, what is so important for the non-ferrous metal deep-mining industry, built up further ore reserves, which now stand at 3,424,594 short tons.

The new prospecting and development of all the remaining areas of the leasehold, despite the fall in copper prices, continues on an extensive and uninterrupted scale, but although it is premature to forecast results, it is necessary for me to issue a caution that the results so far obtained, although not unsatisfactory, are not conducive to any spectacular increase in production in the near future.

The production of copper was a further record and in order to achieve this it was necessary to increase the productive capacity of the Works, which is still being continued according to the requirements necessitated by the increasing production of ore.

### Accounts

The profit before providing for taxation, depreciation and reserves amounts to £1,507,184. Depreciation at £175,000, the same as last year, has been provided for in view of the large capital expenditure required for prospecting, development and the increasing production programme planned. Your Directors have transferred £175,000 to General Reserve.

As regards Taxation, £932,689 has been reserved in the Balance Sheet. Of this £676,315 is for Income Tax and Super Tax, £99,355 is additional Super Tax on the 1955 Final Dividend and Bonus and the Interim and Final Dividends for 1956, £137,130 is tax on the Bonus Share Issue and £19,889 is reserved against Wealth Tax under the new Budget.

### Kyanite

The mining, benefication and despatch of kyanite ore from the Company's leasehold property continued uninterrupted throughout the year. The export of this ore remains unrestricted and despatches amounted to 16,617 tons, being 2,617 tons less than in the previous year due to shortage of waggons to carry the ore from the mines to Calcutta Docks. Our main world markets continued to be the North American continent and Europe, and prices were maintained at approximately £23 per ton f.o.b. Calcutta as compared to £20 per ton in the previous year.

The civil suit brought by the Bihar Government against the Company and the civil suit brought against the Bihar Government by the Company for specific performance to renew their lease, as reported by your Chairman at the last Annual General Meeting, were both decreed in favour of the Company, but the Bihar Government has appealed to the Patna High Court, where the suits are now pending.

The report was adopted.

# POWELL DUFFRYN LIMITED

The Annual General Meeting of Powell Duffryn, Limited, was held on September 19 in London, **Sir Henry Wilson Smith, K.C.B., K.B.E.** (the Chairman), presiding.

The following is an extract from his circulated statement:—

In a variety of ways, the previous year 1955-56 was for our Group an exceptionally favourable year. Certain of those favourable features were much less evident in 1956-57; the pressure on profit margins resulting from constantly rising costs was even more marked; international difficulties, especially in the Middle East, and above all, in Egypt, were more frustrating than ever. Yet the Group Trading Surplus, after Depreciation, shows an increase of £166,000, or approximately 9 per cent. Furthermore, despite the virtual disappearance from our Accounts of Interim Income in respect of Coal Compensation, total net Profits, after deducting the taxation provision for the year, are only £31,799 below those of a year ago. This is not an unsatisfactory result, especially as the liquid resources of the Group are still in process of re-deployment over a wide range of diversified activities.

### Group Developments

**Stephenson Clarke** continues its policy of new building for the replacement of older vessels and for the expansion of its fleet. In all, the forward shipbuilding commitments of Stephenson Clarke at the time of the Budget amounted to over £2,000,000.

In **Cory Brothers,** plans for increasing our oil storage capacity are now coming to fruition. At Barry, work is actively proceeding on the stage of development designed to give an increased tankage of 50,000 tons by the middle of next year. If all goes well, subsequent stages will add a further 100,000 tons, which will make the total capacity nearly 300,000 tons in all. Smaller extensions of capacity at Ipswich are practically complete.

As regards the timber interests of Cory Brothers, the main current emphasis is on the development of the home business in and through **J. R. Gordon & Company.** Three new sawmills have been built in Wales and have come into operation. At Newtown, Montgomeryshire, plant has been installed for the manufacture of wood wool and at Queensferry, North Wales, a modern mill for the manufacture of insulation board has been constructed. In full operation, the mill should produce 30 million square feet of insulation board a year.

Under the atomic energy programme for the generation of electricity, there is a large demand for graphite specially manufactured and specially machined. In this latter respect **Powell Duffryn Carbon Products,** with its accumulated knowledge, will have a part to play.

Apart from items not yet translated into actual commitments, the total of capital commitments at March 31 last was £3,011,000. I express the hope that with a proper understanding of our current activities and forward policy, out-of-date prophecies of further return of capital will be replaced by an appreciation of the ever-growing financial needs of a virile and progressive Group of Companies.

The report and accounts were adopted.